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CONTENTS

	PAGE
Editorials	41
Letters to the Editor	46
Publications Received	47
The Scrap Heap	48
Overseas Railway Affairs	49
New Coronation Scot Train for U.S.A. Visit	51
Road Transport Section	59
Railway News Section	71
Personal	71
Legal and Official Notices	83
Railway Share Market	84

London Passenger Fares

THE recent announcement that the four main-line railway companies will apply during the next few days to the Railway Rates Tribunal for authority to increase passenger fares on their London suburban lines by 5 per cent. was foreshadowed in these columns on November 25. Should the desired sanction be received, the companies will be able to bring the general level of their London passenger fares into harmony with those operating in the rest of the country, where they were raised by a similar percentage on October 1, 1937. It is understood that the London Passenger Transport Board, while supporting the application of the main-line railway companies, will not seek similar authority, as their existing statutory powers will enable them to adjust certain anomalies which now exist and others which will be created when the main-line companies' suburban fares are raised. It will be realised that the number of points at which the main lines and the board's railways intersect has involved many difficulties in agreeing through fares, especially as the board has had to keep prominently in mind the undesirability of so altering its railway fares as to cause any material transfer of passengers to its road services. Thus, where the main-line companies operate between points served by the board, it may not be possible to apply the full increase because of the reactions such a step would have on the local rail and/or omnibus fares of the board between those points. Many complicated considerations are involved, but it is understood that the board is concentrating attention particularly upon those sections of its railways where present fares are on a very low basis. The board's charging powers in respect of its buses are not governed by statute and it is therefore at liberty to adjust these fares as it considers advisable.

A vital consideration in this connection, however, is the fact that such a large proportion of bus travel is "luxury" travel which even a slight disturbance of the fares or fare stages might affect detrimentally; consequently the utmost care is required in effecting any such adjustments. Having regard to all the factors involved, it appears improbable that any increases will become effective for several months yet.

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No Extra Charge

Complaints of discomfort on Christmas railway journeys were answered by Sir William V. Wood, Vice-President, L.M.S.R., in a letter to *The Times* on Tuesday. Two correspondents who were passengers by midday services from Euston to Glasgow on December 23, had related in earlier letters how the heating system in their carriages had failed, the kitchen cars were overtaxed with demands for food and handicapped by a shortage of gas for cooking, and a breakdown of the lighting system added to the difficulties of passengers and staff. Sir William Wood's reply dealt mainly with the longer of these tales of woe, and while fully acknowledging the inconvenience of the two technical defects, drew attention to the abnormal conditions under which stock was being operated at this period. The demand for meals at holiday week-ends makes it difficult to find sufficient kitchen and vestibule cars for the service of trains running in numerous parts, and on this occasion the problem was increased by the extra numbers travelling by rail on account of the snow-bound roads. Another extenuating point for the railways seems to us to be that, unlike so many other transport, catering, and even entertainment agencies, they do not charge their customers more at peak periods. Such a policy might facilitate the provision of extra stock for exceptional demands, but would doubtless be as much criticised as the present situation.

* * * *

The Week's Traffics

For the first week's working of 1939 a combined total decrease of £331,000 or 11.89 per cent. is shown by the four main-line companies as compared with the opening week of 1938, when a combined increase of £83,000 over 1937 was recorded. At this time a year ago passenger train traffics were up £44,000 and coal takings showed an improvement of £48,500, whereas merchandise receipts were £9,500 down.

	1st Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R. ..	16,000	104,000	26,000	146,000	146,000	-12.86
L.N.E.R. ..	18,000	74,000	42,000	134,000	134,000	-16.46
G.W.R. ..	1,000	25,000	11,000	37,000	37,000	-7.61
S.R. ..	6,000	4,500	3,500	14,000	14,000	-4.01

The Great Northern Railway (Ireland) shows an increase of £450 for the week and the Belfast & County Down one of £35, but the Great Southern has a net decrease of £5,089 because of a fall of £5,421 in goods traffic receipts. Mersey receipts for the week are up £27 and Liverpool Overhead £85.

* * * *

A Railway Traffic Comparison

An instructive analysis of the traffic position of the four main-line railways appeared in the City Notes of *The Times* on Monday last, January 9. The compiler has adopted as a basis of comparison the average receipts for the four years 1927-30, which period followed the year of the general strike, and it included the closing stages of the 1928-29 boom and the early stages of the 1929-32 depression. Taking this average as 100, the total traffics of the four companies for 1938 represent 87.5 per cent.,

and 91.4 per cent. for 1937. Passenger train receipts in 1938 were 93.1 per cent. and in 1937 were 93.2 per cent. of the average for 1927-30, and the coal receipts were 97.5 per cent. in 1937 and in 1938 were 93.3 per cent. of the basic figure. Merchandise receipts in 1938 were, on the other hand, only 77.9 per cent., and in 1937 only 86.1 per cent. of the selected average. These figures illustrate the exceptionally heavy degree of depression in merchandise traffics contrasted with the comparatively slight falls experienced in the two other classes, which are not so susceptible to road competition. Trade depression may account partly for the merchandise decline in 1938, but that in a prosperous year like 1937 the railway merchandise receipts were only 86.1 per cent. of the average in the basic period, further signifies the necessity for enabling the railways to compete on fair terms.

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Overseas Railway Traffics

British-owned railway companies in Brazil secured improved earnings in currency during the year 1938, but in sterling the receipts of the Great Western were down £23,000, those of the Leopoldina showed a fall of £67,747, and those of the San Paulo a fall of £73,800. Among Argentine railways the principal feature during the past three weeks has been the increase of £50,431 in Central Argentine receipts following on the greater movement of maize. An improvement of £11,352 has been shown for the same period by the Buenos Ayres & Pacific, and a net advance of £2,128 by the Entre Rios, but the Argentine North Eastern has dropped £1,346, the Buenos Ayres Great Southern £34,243, and the Buenos Ayres Western £1,985.

	No. of Weekly Week Traffics	Inc. or Decrease £	Aggregate Traffic £	Inc. or Decrease £
Buenos Ayres & Pacific ..	28th 92,060	+ 8,251	2,088,093	- 136,165
Buenos Ayres Great Southern ..	28th 151,363	- 34,925	3,532,754	- 58,685
Buenos Ayres Western ..	28th 40,633	- 2,047	1,143,548	- 126,304
Central Argentine ..	28th 128,564	+ 17,047	2,966,204	- 572,500
Canadian Pacific ..	52nd 707,200	- 64,600	28,451,800	- 365,400
Bombay, Baroda & Central India ..	38th 285,300	+ 750	6,457,350	- 92,550

Gross earnings of the Canadian Pacific for the first eleven months of 1938 amounted to £26,062,200, a decrease of £502,400, and the net earnings of £3,481,200 were £682,200 lower.

* * * *

Rohilkund & Kumaon Railway

Results for the year ended September 30, 1938, were less favourable than for the previous year. Gross earnings were Rs. 1,56,896 lower, and working expenses increased by Rs. 4,13,721, so that net earnings decreased by Rs. 5,70,617. Of the net earnings, Rs. 16,74,298 were attributable to the company's own lines and Rs. 20,06,071 to the Lucknow—Bareilly State Railway. In sterling the company secured £125,572 (against £144,823) from its own line and £9,534 (against £12,570) as its share of surplus profits of the Lucknow—Bareilly line. Stockholders again receive a dividend and bonus amounting to 18 per cent., but the carry forward is reduced from £21,451 to £15,999.

	1936-37	1937-38
Mean mileage ..	575	575
Passengers ..	6,976,062	6,814,332
General merchandise, tons ..	1,567,755	1,473,098
Train-miles ..	2,080,002	2,299,118
Operating ratio, per cent. ..	44.93	51.33
	Rs.	Rs.
Coaching receipts ..	28,12,576	27,91,641
Goods traffic receipts ..	45,23,989	44,22,704
Total earnings ..	77,19,025	75,62,129
Working expenses ..	34,68,039	38,81,760
Net earnings ..	42,50,986	36,80,369

Locomotive expenses increased by Rs. 2,37,790, owing to renewal of engines and higher cost of coal. Main-

tenance of way and works cost Rs. 1,38,567 more, due to heavier repairs to bridges.

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Gold Coast Railway

As a result of the hold-up in the marketing of the 1937 cocoa crop the revenue from cocoa traffic during the year ended March 31, 1938, was £259,199 less than for the previous year; but largely on account of increased railings of manganese ore a record total tonnage was carried and the net result to revenue was a fall of £189,969 or 17.1 per cent. Over 90,000 more engine miles were run and this, coupled with the increase in the cost of materials and stores, is responsible for the increase of £43,823 or 9.6 per cent. in ordinary working expenditure. A contribution of £21,606, against £139,491, was made to renewals fund. Net earnings returned 4.31 per cent. on the total capital expenditure of £9,374,991. In the passenger revenue of £192,524 there was a decline of £8,613 or 4.3 per cent., and the goods revenue of £667,790 showed a fall of £191,429 or 22.3 per cent.

	1936-37	1937-38
Passengers ..	3,537,050	3,436,478
Paying goods, tons ..	1,005,407	955,888
Paying train-miles ..	1,273,280	1,197,969
	per cent.	per cent.
Operating ratio, excluding renewals	40.81	53.95
	£	£
Gross earnings ..	1,113,603	923,634
Expenditure, including renewals ..	593,976	519,914
Net earnings ..	519,627	403,720
Loan charges and sinking fund ..	403,994	403,720
Surplus ..	115,633	—

The Carriage of Goods by Road Ordinance was effective in preventing loss of traffic to the road.

* * * *

Southern Railway's Debenture Issue

The Southern Railway Company's offer for sale at 98½ per cent. of £7,500,000 of 4 per cent. redeemable debenture stock 1970/1980 is the first public issue of capital made by any of the four main-line companies for some time past. To reimburse the company for certain capital expenditure already incurred on electrification and to meet the cost of further additions and improvements are the objects of the new issue. Some indication of the past year's results is given by the announcement in the prospectus that £2,243,167 will be required to meet the perpetual annuities and the interest on debenture stocks, including the new issue, and that the directors are satisfied that this sum will be covered more than 2½ times by the net revenue for 1938. On this calculation, net revenue should be at least £5,607,917, making the amount available for dividend on the preferred ordinary stock at least £913,472, apart from the £226,804 carried forward from 1937. A 3½ per cent. dividend on this stock for the whole year, including the 1 per cent. interim paid last August, would require £965,531. In 1932 the company issued £4,750,000 of 4 per cent. redeemable debenture stock at par. Previous large issues by other companies have been £5,750,000 of 5 per cent. redeemable debenture stock by the L.M.S.R. in April, 1927, and £5,000,000 of 5 per cent. redeemable debenture stock by the L.N.E.R. in March, 1927. In October, 1930, the L.N.E.R. offered £3,000,000 of 4½ per cent. sinking fund debenture stock at 90 per cent.

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The Railway & Canal Commission and the Mines

The Railway & Canal Commission is known to the railway industry as a standing judicial body to which certain classes of questions arising out of legislation dealing with the railways and canals are referred for decision. Its

scope has been extended more recently to include the coal mines. Under the Coal Mines Act, 1930, schemes of compulsory amalgamation of collieries prepared by the Coal Mines Reorganisation Commission had to be referred to the Railway & Canal Commission for approval and confirmation, and the latter could not confirm such schemes unless satisfied that they were in the national interest, were fair and equitable to all persons affected, and would not be financially injurious to any of the undertakings concerned. Similarly, under the Coal Act, 1938, schemes of amalgamation promoted by the Coal Commission must, after approval in principle by Select Committees of Parliament, be remitted to the Railway & Canal Commission for confirmation, and the Railway & Canal Commission may make such modifications in the scheme as it may consider necessary for enabling the amalgamation to be carried out on terms and conditions that are fair and equitable to all persons affected, and calculated to avoid financial injury to any of the constituent companies.

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The Coronation Scot for the U.S.A.

The L.M.S.R. Coronation Scot train which is being sent to the World's Fair in New York is one of three intended to be placed in service here next year, and from our description on page 51 it will be seen that it incorporates some departures from the previous sets in construction and accommodation. Six of the vehicles are now articulated in pairs on the Gresley principle, and one of them is a first class lounge with cocktail bar. The seventh vehicle is a club saloon car furnished with armchairs. For the American visit only, a standard L.M.S.R. sleeping car is included. An innovation in the kitchen car is the use of smokeless solid fuel for cooking, in connection with which the L.M.S.R. has been co-operating in research with the British Coal Utilisation Council. Externally, the train is a departure from its predecessors in the Coronation Scot service by being painted L.M.S.R. red with gold bands. Its interior appointments are described in our article, but were well summarised by Lord Stamp at the farewell luncheon to the train when he quoted the comment that it is "the *Queen Mary* of the Iron Road." Another opinion was that it would be impossible to look out of the windows because the train was so attractive inside. Such testimonials bode well for its chance of "beating the Royal Scot in the American imagination." On Monday afternoon the train ran back from Euston, where it had been exhibited, to Derby.

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Southern Sailings

Although the European situation adversely affected travel in the autumn, the Southern Railway Company's marine services to the Continent, Channel Islands, and the Isle of Wight carried approximately 4,500,000 passengers last year. Of that total nearly 2,000,000 were transported across the Channel. These figures were given by Mr. R. P. Biddle, Docks and Marine Manager, at the fourth annual dinner of the Southern Railway Marine Officers' Club on Saturday last. He observed that the company owned and operated 48 vessels in addition to motor tugs and ferries, and additional steamers were chartered during the busy freight season. During the past ten years nearly £1,500,000 had been spent on new ships, and of this sum over one-third had been expended on the Southampton fleet. Tenders had also just been invited for a new passenger steamer for the Dover-Calais route. The difficult times through which the railway was passing demanded increasing efficiency and economy. Competition, increas-

ing year by year, had to be faced. In Jersey, for instance, at one time the railway steamers carried the greater proportion of the potato traffic. Last year Southern vessels carried only 18 per cent. of the total and those of the G.W.R. a slightly smaller percentage. This was due largely to increased competition and Mr. Biddle wondered whether the traders in Jersey gave sufficient recognition to the passenger and cargo services the railways maintained throughout the year, frequently with very light loads.

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900 Tons at 102 m.p.h.

Some remarkable speed tests have been made recently in the United States in order to compile data regarding train resistance and locomotive performance in the higher ranges of speed. For these tests a train of new Pennsylvania stock was assembled, selected to total 1,000 American short tons, or about 900 English tons, gross weight. This was first tried over Pennsylvania metals between Fort Wayne and Chicago, with the customary Pennsylvania combination for heavy trains of two "K4s" Pacifics, which together attained 90 m.p.h. westbound and 91 m.p.h. eastbound. These engines, built in 1924, have 6 ft. 8 in. driving wheels, 205 lb. pressure, and 44,000 lb. rated tractive effort. Next the Chicago & North Western company experimented with its latest streamlined Hudson (4-6-4) locomotives, having 7 ft. wheels, 300 lb. pressure, and 55,000 lb. tractive effort; one of these engines with 12-in. piston-valves touched 95 m.p.h. westbound but another with 14-in. valves reached only 89½ m.p.h. on the eastbound run. Last came the Union Pacific, with a new 4-8-4 having 6 ft. 5 in. driving wheels, 300 lb. pressure, and 63,000 lb. tractive effort; this machine attained 89 m.p.h. on the westbound journey to Grand Island, and the astonishing maximum—for eight-coupled wheels—of 102 m.p.h. coming east. Most of these maxima were recorded on very slightly falling gradients, and it is a striking commentary on present-day locomotive development that speeds exceeding 90 m.p.h. can thus be attained on but little easier than level track with a 900-ton train.

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The Future Locomotive

One of those who contributed papers at the second annual meeting of the Railway Fuel and Travelling Engineers' Association held at Chicago recently, Mr. F. P. Roesch, took as his subject "Archaic Details in Locomotive Design," in which some pointed questions concerning conventional features which affect fuel economy were discussed. Summing up, the author forecast that among the improvements in the high-speed locomotive of tomorrow will be a softer exhaust, a level restricted grate, a sealed extended arch, and increased combustion volume compared to grate area. It will burn semi-pulverised fuel, fired mechanically without fear of cinder loss and with much greater efficiency than under present methods, which means greater heat transfer and higher superheat. In other words, engineers will devote more study to increasing combustion efficiency, and in so doing increase overall efficiency, as the one goes hand in hand with the other. The locomotive will, it was contended, retain its present general outward appearance, and while the streamlined effect will no doubt be retained because of its advertising value, the boiler and particularly the firebox and its related parts, will witness the most detailed changes, as improvement in the generation of steam for locomotive purposes still provides a fertile field and one wherein the greatest promise may be looked for at the least expense.

Passenger Fares and Facilities in 1939

ALTHOUGH the British railways experienced such a serious decline in gross receipts during 1938, the drop in passenger revenue was not nearly so severe as that experienced in connection with merchandise and mineral traffic. The latest available Ministry of Transport statistics show that during the nine months ended September 30, 1938, there was a decrease of 52,893,742 passenger journeys (or 7.59 per cent.) compared with the corresponding period of 1937, on standard gauge railways, excluding those operated by the London Passenger Transport Board and journeys made by season ticket holders. This decrease in journeys resulted in a reduction of £163,051 (or 0.39 per cent.) in the gross passenger revenue, notwithstanding the 5 per cent. increase in fares which was in operation throughout the year as compared with only three months in 1937; on the other hand, receipts from season ticket holders rose by £99,987, or 1.49 per cent. With the exception of season tickets, there was a substantial reduction in the numbers of each description of tickets issued, the greatest proportionate decrease compared with 1937 being experienced in journeys at standard or ordinary fares, *viz.*, 9,699,656 or 13.64 per cent. The heaviest actual decrease occurred in day, half-day, and evening excursions, this totalling no fewer than 36,689,269 or 10.21 per cent., a fairly clear indication of the adverse effect which the trade recession had upon the national spending power, as this class of travel is rapidly responsive to the effect of trade fluctuations.

The extension of the "holidays with pay" movement was doubtless largely responsible for the fact that monthly return tickets declined by only 2,268,133 or 5.22 per cent. So far as receipts are concerned, the heaviest decreases were in day, half-day, and evening fares, where the reduction was £456,605 or 3.68 per cent., while that in respect of standard or ordinary fares was £198,675 or 3.43 per cent. On the other hand, despite the reduction in journeys, the receipts from monthly return and period excursion tickets rose by £197,003 or 1.22 per cent. Receipts from other reduced fares such as market tickets, privilege tickets, school treats, and so on, increased by £268,723 or 6.25 per cent., while workmen's fares showed an increase of £32,913 or 1.14 per cent., notwithstanding a decrease of 2,425,421 journeys. As was the case during 1936, nearly 40 per cent. of the railway passenger revenue, other than that from season tickets, during the nine months ended September last was secured from monthly return tickets, and there is no doubt that the advantages afforded by these tickets at the reasonable fare of about a penny a mile third class, and about three-halfpence a mile, first class, with the month's availability, break of journey facilities, and freedom as to train services, have made them very popular with travellers. They are therefore being continued during 1939, on the same basis, subject to the present minimum fares of 2s. 6d. third class and 3s. 9d. first class. These minima have been abolished experimentally in certain districts in South Wales and in the North of England and Scotland, but it is not proposed, at the moment, to carry this experiment further.

The day, half-day, and evening trips are of almost bewildering, and certainly of intriguing, variety, and the temporary check in the expansion of this business is not attributable to any lessening of their popularity. For many of these trips express services are afforded with the most up-to-date stock and buffet car facilities, at fares as low as three miles a penny on long distance half-day trips, and six miles a penny on the evening trips. In the hope of improving trade, many new excursions have been arranged for 1939 and, in particular, educational trips to workshops, colleges, and places of historic interest will

be largely extended. A noteworthy feature of passenger business in the last two or three years has been the striking development in Sunday excursion travel, and the crowds which may be seen at the principal railway stations between 10 and 11 a.m. on Sunday mornings are a tribute to the skill of the passenger commercial staffs in attracting a steadily increasing public interest. The Great Western, London Midland & Scottish, and London & North Eastern Railway Companies are therefore continuing unaltered the arrangements introduced in 1936 under which, in addition to the usual half-day excursion trips, cheap day return tickets may be obtained between any pair of stations on their systems, either for local or through journeys, at the ordinary single fare for the double trip, subject to the same minima as apply in the case of monthly return tickets. Apart from a few very minor variations, the whole of the remaining cheap fare arrangements are being continued unchanged, and should the hopes of improving trade materialise, and international relationships show some improvement, the British railways can reasonably hope for increased passenger business this year.

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Traffic Commissioners' Reports

THE annual reports of the traffic commissioners for the twelve months ended March 31 last, show that at December 31, 1937, the number of persons running public service vehicles (including those who operated summer services only) from whom returns were received was 4,798, a decrease of 218 or 4.3 per cent. compared with that at the end of 1936. There was an increase of 1,527 or 3.2 per cent. in the number of vehicles owned, which reached a total of 49,574, while the total number of seats rose by 3.8 per cent. to 1,737,487. The average seating capacity per vehicle showed a slight increase from 34.8 to 35.05 seats in the same period. Passenger journeys on all services increased by 3.7 per cent. to 6,664 millions, giving an average daily number of 18.3 million passenger journeys as compared with 17.6 millions in 1936. The receipts from passengers carried on all services rose by 3.8 per cent. to £67,600,000. Vehicle-miles run on all services increased by 2.1 per cent. to 1,461.6 millions, while the average receipt per passenger journey at 2.44d. for all services showed no material variation from the previous year. Such in brief are the main statistical features of the reports, but there are many items of interest in the individual commissioners' reports, which cover some 105 pages, with which we hope to deal more fully in our next Road Transport Section. Meanwhile, a cursory glance at the reports shows that the commissioners generally are satisfied that there has been a progressive improvement in the design, furnishing, equipment, and condition of public service vehicles since 1931, and that the standard of maintenance is generally rising.

The question of vehicles being driven at excessive speed is causing several of the commissioners concern, while in several areas there has been an increase in the number of convictions of drivers for being engaged excessive hours on private party work. The outstanding point of criticism which is common to most of the reports, however, is in connection with the evasion of the law by the illegal use, without road service licences, of vehicles as stage or express carriages under the excuse that the operator thought they were hired as contract carriages or for the carriage of private parties on special occasions. This growing practice is resulting in licensed services being menaced by illegal competition and is thus prejudicing seriously operators who observe the law. The Metropolitan Traffic Commissioner remarks that the amendment of the law by Section 25 of the Road Traffic Act, 1934,

has clarified the position, but it has not reduced the breaches of the law, and he quotes figures to show that the position in this respect is steadily deteriorating. Conviction is also expressed that collusion is growing between the holders of public service vehicle licences and the organisers of parties, and the commissioners generally press for an amendment of the law to ensure that those operators who comply with their legal obligation to make reasonable enquiries before accepting such contracts are not prejudiced by those who make no enquiries or conceal information which they have secured.

* * * *

Planning

IF the word "planning" has not already formed a battleground in Mr. A. P. Herbert's word war it ought to, for it is one of the worst abused words of the present day. Planning implies essentially a clearly defined and well understood objective, whereas it is far too often loosely used as if planning were an end in itself, or without the end to which it is a means being plainly stated. To attempt to plan so can lead only to confusion and trouble. It is therefore good to read in the L.M.S.R. Operating Department's staff publication *On Time* a pithy article on planning, used in its proper meaning, by Mr. F. A. Pope, the Superintendent of Operation. As he says, there is very little that is worth while in any sphere of human activity that can be undertaken without planning. The qualification "that is worth while" should be noted. Here we have the implication of the aim, for, in order to judge what is worth while, the aim must be obvious to those who would achieve it. Having defined the result required, the plan should be formulated on the principle of first things first, of an orderly campaign of doing well and truly that which must be done. This is what Mr. Pope stresses for the guidance of his staff, and it is something that deserves stressing now and again; for many whom circumstances have thrust into jobs that may not be quite on the lines of their natural aptitude are inclined to rush along without giving careful thought to the proper order or priority of their actions. Mr. Pope's particular theme is the correct working of traffic to pre-arranged timetables. Although timetables and programmes for the working of rolling stock are carefully planned ahead, it is necessary, to ensure satisfactory working, that local operations should also be planned; and so he brings the responsibility right down to the humblest member of the staff. It is, after all, on the individual that the success of any large-scale plan depends. It lays down the outline, but necessarily leaves the elaboration to those in close touch with the human circumstances. They must complete the scheme with their own smaller plans; and they will exercise their responsibility best in the knowledge that it is accompanied by commensurate authority. The main plan should avoid minute detail, for thus initiative is encouraged and working made smooth.

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The L.M.S.R. Flat-Bottom Track Trails

NO experiment in British permanent way construction has evoked greater interest of recent years than the trials of flat-bottom track on the main line of the L.M.S.R. It will be recalled that an illustrated description of this track was given in THE RAILWAY GAZETTE of May 14, 1937 (page 941), and the paper by Mr. N. W. Swinnerton to the Permanent Way Institution in London last Monday was of particular interest in its account of practical experience in the laying and maintenance of this track. Altogether a total of five miles was laid in 1936 on different parts of the line under varying conditions of service. The

rails used were the British Standard 110-lb. section, according to B.S.S. No. 11—1926. They were rolled by Colvilles Limited at that firm's Glengarnock works, and rolls had to be cut specially for the purpose, this section not having been manufactured before. The length of rail used was 60 ft., and $\frac{1}{4}$ -in. expansion gaps were allowed. The steel was of the now general medium manganese composition.

Shallow type fishplates 20 in. long, with four bolts made from Class B steel in accordance with B.S.S. No. 47—1928, were adopted throughout. Baseplates of four distinct types were used, and these, together with the fastenings, were illustrated in the article above mentioned. The types of fastening were five in number. Two closely resemble the German standard, with clip bolts holding the rail in position, and two have mushroom-head coachscrews for this purpose. In the latter, a clearance of $\frac{1}{8}$ in. is left between the head of the screws and the rail foot. The baseplate in both these types is fixed to the sleeper independently by three coach screws. The third pattern of fastening was the novel elastic rail spike serving as a means of securing both rail to baseplate and baseplate to sleeper; and it appears that, besides being the simplest type of fastening, this has proved so far to be at least as effective as any. With the second type mentioned above, it has been necessary, of course, to use rail anchors to prevent creep, but with the German type of fastening and with the elastic spike, creep difficulties have not occurred.

The experimental lengths have been in service for less than two years, so it is not yet possible to pronounce conclusively as to their relative merits compared with the standard bull-head track, but at least they have been no more difficult to maintain than the adjacent lengths of the latter type which were laid new for control purposes at the same time as the flat-bottom lengths were put down. On some of the lengths 29 sleepers were used as against the standard 24 per rail length, and as might be expected the additional cost of the former appears already to be justified to some extent by the less attention required to the track. In all the trial lengths on the L.M.S.R. so far laid there is a minimum of 4 in. of stone ballast under the sleepers. Mr. Swinnerton revealed that a cast iron baseplate and the elastic spike sleeper assembly is cheaper than the standard chair and screw assembly for bull-head track; but there remains, of course, the additional cost due to the heavier section of the flat-bottom rail, although this higher initial cost may be outweighed eventually by reduced maintenance cost owing to the greater strength of the 110-lb. flat-bottom section.

During the present year about 11 miles of flat-bottom track are to be laid on the L.M.S. main lines, five miles with the A.R.E.A. (American) 131-lb. rail and six miles with the B.S. 110-lb. rail. About one-third of each weight of rail is to be sleepers with each of the three types mentioned above. The 110-lb. rail lengths will be laid with two-bolt pattern fishplates on the joint, but with the 131-lb. rail four-bolt and six-bolt fishplates will be used, the latter two types of the A.R.E.A. design and oil quenched. These extended tests undertaken by Mr. W. K. Wallace, Chief Engineer of the L.M.S.R., are of importance to British railway engineers as a whole, whose attention is being focused more and more on the track as train speeds and rolling loads increase. Useful as such experiments are, however, we remain of the opinion that there is nothing more important nor more likely to be a paying proposition in the long run than the strengthening of the roadbed upon which the sleepers rest. The provision of really adequate drainage and ample stone ballast may be costly in the first instance, but it inevitably leads to reduced maintenance expenditure, more stable track, and smoother running.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Comfort and Coach Weight

London, January 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was interested in the letter in your issue of December 23, 1938, under the heading of "Comfort and Coach Weight." While fully appreciating the argument that your correspondent develops I cannot help feeling that it would be a retrograde policy to veto the provision of amenities on the grounds that they increase demands on the locomotives. After all, such an argument, carried to its furthest, would abolish restaurant cars and restore non-corridor coaches! For my own part I thought it a particularly happy inspiration to lavish upon the new rolling stock for the Hook Continental all the very latest refinements in British coach building practice. As a means of impressing the overseas visitor this train could scarcely be surpassed. And surely The Flying Scotsman, "The World's Most Famous Train" as it is proudly advertised, should not be denied the best that this country can produce.

In developing his argument by examples of the running of the latter train since the introduction of the new stock; your correspondent implies, perhaps not intentionally, that the limit of existing locomotive capacity has been so nearly reached that little reserve of power remains with which to recover time lost by relaying slacks, and so on. This is not so, and unfortunately for his argument the experiences that he quotes are exceptional. I have before me details of seventeen runs on this express made between December 1 and December 20, 1938. On not one occasion was any time lost by locomotive on any section. The average load was 480 tons, and in the aggregate no less than 110 min.—or 6½ min. a journey—were gained on schedule in the recovery of time lost by engineering and traffic delays. Nine different streamlined locomotives were concerned, and ten different engine crews. It is also clear that heavy week-end loads make no difference to the regaining of lost time, indeed one of the most spectacular performances—eleven minutes regained—took place on December 20, when the load was 524 tons; on an occasion when the load was 560 tons, 7½ min. were regained by engine. On a run just prior to the period mentioned, this famous train, loaded to 465 tons, was brought into King's Cross on time after a series of delays *en route* costing in the aggregate sixteen minutes. The tonnages quoted are in all cases the net weight of the coaching stock; a further 20-25 tons, in respect of passengers and luggage, requires to be added in order to obtain the approximate gross load behind the tender on each trip.

I am glad thus to be in a position to add yet another tribute to the magnificent work of the Gresley streamlined Pacifics, and to the consistently able handling of them by the drivers and firemen at King's Cross and Gateshead sheds.

Yours, &c.,

SCRUTINEER

Locomotive Driver or Engineer?

London, S.W.1, January 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As you have not, as yet, applied the closure to the correspondence under the above heading, may I be permitted to comment on the letter of Mr. Malcolm McLaren Niven appearing on page 6 of the current issue of THE RAILWAY GAZETTE.

Like Mr. Niven I have had experience of both marine and locomotive engineering on a practical basis, having "served my time," as a pupil, in a railway locomotive works, fired and driven locomotives over many thousands of miles, and made several voyages as engineer in the vessels of a well-known line on the South African Indian routes.

This experience taught me that there is all the

difference in the world, where their duties are concerned, between an engine-room officer on a liner and the driver of a locomotive. On the boats in which I served, the engineers were on occasions called upon, as is unavoidable, to do their own repairs when away from the home port, involving the use of machine tools on board, and in one instance the engine room staff, of whom I was a member, had to work continuously the whole of a day and night effecting a vital repair at sea (with sea anchors out), it being impossible to proceed until a repair had been effected.

Moreover, before I could be appointed to a ship as engineer, I had to serve for several months on the owner's shore staff of engineers, doing repair work on the ships' engines and machinery as they came in from their long ocean voyages, and this work had often to be done within a time limit in order that the vessel should not be delayed. Prior to all that, I served in the drawing office of a large firm of marine engineers. The steamship line which employed me insisted, as is the universal practice, that no one could be given an engine room appointment unless he had the proper engineering qualifications apart from the ability to drive the engines whilst at sea. I altogether dissent from your correspondent's reference to the Board of Trade certificate. My own experience was exactly the opposite.

My purpose in writing this letter is not that of "airing" my experiences in your columns, but to endeavour to show that there is very little in common as regards their qualifications between a marine or locomotive engineer and an engine driver.

Yours faithfully,

CHAS. S. LAKE
M.I.Mech.E., M.I.Loco.E.

[This correspondence is now closed.—Ed. R.G.]

The Square Deal Campaign

Kilwinnet, Mansewood,

Glasgow, S.3

December 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—When considering the various points which are at present raised by the railway companies in their application for revival of transport facilities, it should be kept in view that (1) the railway companies are one of the largest taxpayers in the country, and (2) that the railway companies maintain the public highways where these are carried over the railway by bridges.

1.—In regard to the former the railway companies are taxed both in respect of the land on which the railways are constructed and also in respect of the railway works constructed thereon. No such tax is made in respect of the public highways, and the road track is free to the road users. It is suggested that the railway companies be entirely relieved of all taxation in respect of the land which they occupy and also in respect of the railway buildings and other works thereon.

2.—The railway companies maintain at their own cost about 760 miles of roadway on the overbridges and road approaches thereto and it is only reasonable, more especially in view of the enormous traffic on the roads today compared with the light traffic in existence when the railways were made 100 years ago, that the railway companies be relieved of all expense incurred in the maintenance of these road surfaces, footpaths, and fencing alongside, and relative works in connection therewith.

The writer is of opinion that the railway companies should be recompensed for the maintenance of the road surfaces on overbridges and road approaches as from the year 1910, about which date the really rapid growth of motorcar traffic took place.

JOHN W. I. GARDNER, M.INST.C.E.

PUBLICATIONS RECEIVED

Investors' Pocket List of Reference Tables, 1939. London: Fredc. C. Mathieson & Sons, 16, Copthall Avenue, E.C.2. 6½ in. × 3½ in. 14 pp. Limp cloth. Price 1s.—Investors will welcome this handy little pocket book, which repeats the features found so useful in previous years. It contains a perpetual yield table; a table for calculating yields on £1 shares; stamp duties on transfers and contract notes; income tax at 5s. 6d. in the £; income tax for investors; fractions of £1 in money and decimals; dividend and interest table for £1, 10s., and 2s. shares; official minimum scales of brokers' commissions, and so forth.

Mechanical World Year Book, 1939. Manchester: Emmott & Co. Ltd., 31, King Street West; London: 28, Bedford Street, W.C.2. 4½ in. × 6½ in. × 1 in. 360 pp. + diary and memoranda for 1939. Illustrated.—This book is in its fifty-second year of publication, and has always been kept well abreast of requirements. Of convenient size, it contains a large amount of reference matter, tables, and data of various kinds constantly used by engineers, draughtsmen, students and others, and as such it satisfies a very real want. A new section covering the subject of tool steel, non-ferrous metals, and high temperature measurements has been added, dealing with engineering metals from the users' point of view. Comprehensive tables of compositions, properties, and heat treatment are given for a large number of steels, and separate treatment is accorded to tool steels and non-ferrous metals and alloys. General detailed revision of the work as a whole has been made, the scope of its usefulness being correspondingly enlarged.

Great Western Railway Magazine, Vol. 50, 1938. London: Great Western Railway, Paddington station, W.2. 9½ in. × 7½ in. × 1½ in. 526 pp. Illustrated.—The bound issues for 1938 of the *Great Western Railway Magazine* form a substantial volume that is not only a record of railway work and railway staff changes and social activities during the year, but something of a guide and picture gallery of the counties served by the company's lines. The past year has been a notable one in the history of this periodical, as in November it celebrated its jubilee. Perhaps no better summary of the magazine's appeal could be given than in the words of Viscount Horne, Chairman of the G.W.R., when he said in an introduction to that issue: "It would be a mistake to suppose that the magazine is one which appeals only to the interested workers of the Great Western Railway. In fact, it is an eminently readable journal of a scope wide enough to attract a much greater public, and its articles are rich in attractive presentations of English life in a great variety of forms. Very many people, I am sure, have

attained through them a knowledge of lovely regions of England which they could never otherwise have acquired in a form so engaging, and its revealing essays upon the conditions of trade and industry of our country have brought enlightenment to many who would never have enjoyed the same vision in the dusty statistics of our economic journals."

Reinforced Concrete Bridge Design. By C. S. Chetty and Haddon C. Adams. London: Chapman & Hall Limited, 11, Henrietta Street, W.C.2. 10 in. × 6½ in. × 1½ in. 412 pp. Illustrated. Price 42s. net.—This work is divided into three sections devoted respectively to theory, design, and construction, and assumes in all of them that the reader has some familiarity with, and experience of the subject. The mathematical treatment, involving simple application of the calculus for reactions, moments, shears, &c., for various types of beams and loadings, is good and highly condensed. Recent developments in concrete practice, such as vibrated concrete, are noted, and a carefully thought-out chapter deals fully with the live loads to be provided for in reinforced concrete bridges, worked examples being given.

Chapter VIII is devoted to portal frames, a somewhat difficult subject treated with clarity and conciseness; a worked example is provided. The treatment of substructures comprising foundations, piers and abutments is very comprehensive, and worked examples of various designs are set out. A description of the various piling systems is given, and a careful examination made of the Terzaghi and Hiley formulae for calculating the bearing resistance of the piles.

Perhaps the most difficult part in the design of a reinforced concrete bridge is to provide adequately for the expansion and contraction stresses. This subject is fully treated in Chapter XII, and various types of rockers, roller bearings, and expansion joints are considered. The calculations of the amount of these stresses due to temperature variations and elastic strain under load are fully dealt with in the design chapters. A chapter is devoted to bridge strengthening and widening, and numerous examples from actual practice are given, paying particular attention to ancient brick or stone structures. The book concludes with a most interesting and instructive chapter on the aesthetics of bridge design, and rules for longitudinal camber, type of curve, and other salient factors in design are given. The author further deals with important points in the finish of the completed structure, and makes a sturdy plea for the inclusion in the specification for any bridge of a clause providing for the completion of one or more sample panels to the approval of the engineers before the work is begun, an excellent idea.

The book contains a very efficient index, and over 300 figures, illustrations, and photographs. This contribution to the literature of reinforced concrete bridge design must be regarded as a most valuable book of reference for those engaged upon the design and construction of new works, or upon the widening, strengthening or modification of existing bridges of either recent or ancient construction.

"B.B. & C.I. Annual, 1939."—By the Publicity Department of that railway, Bombay. 11½ in. × 9 in. 124 pp. Seven colour and many other illustrations. This beautifully illustrated and artistic volume contains a number of remarkable colour plates and a wealth of excellent photographic reproductions, and one of its most striking features is, perhaps, the foreword by the Rt. Hon. Winston Churchill, C.H., M.P., whose portrait fills the facing page. As well as those dealing with various Indian States and their ruling princes, and Indian tourist subjects, there are other illustrated articles on Norway, the railway route from Europe to the East, Finnish Lapland, and jungle life, not the least attractive feature of this publication being its artistic cover in colours. The whole is tastefully got up regardless of expense, and, though it suffers from interleaved advertisements, some of these are quite ornamental.

Material Testing Machines.—The Maschinenfabrik Augsburg-Nürnberg, A.G. (M.A.N.), of Nuremberg, Germany, has issued an illustrated pamphlet in English describing various machines for testing engineering materials. A versatile item in the static tests range is a universal machine for subjecting metals—or, by adaptation, other materials—to tension, compression, buckling, bending, doubling, and shearing tests. It can be equipped with miniature electric furnaces for carrying out tensile tests at temperatures up to 700° C. The dynamic testing equipment includes a machine for measuring friction in bearings at different loads, speeds, and temperatures; an oil-testing machine; and an abrasion machine for determining the machining capability of materials and the quality of tools.

Industrial Electric Heating Appliances.—The wide range of apparatus available for industrial heating purposes is shown in the new edition of catalogue section H (2), which has just been issued by the General Electric Co. Ltd., Magnet House, Kingsway, and the list of industries that can make use of electric heating is correspondingly long. Urns, sterilisers, water stills, soldering irons, sealing wax heaters, glue pots, and metal melting pots may be mentioned as applicable to a variety of industries, while laundry, tailoring, hat, and shoe irons represent more specialised applications. For space heating purposes where the use of a glowing fire is precluded, convector heaters and tubular heaters are available, while bronchitis kettles and sterilisers fulfil many needs in hospitals and nursing homes.

THE SCRAP HEAP

THE GHOST TRAIN

Customer hurriedly handing in telegram: "You'll send that off at once, won't you? They're meeting that train and it isn't running."—*From "The Post Office Magazine."*

BOOM IN TRUNKS

An unexpected boom in the trunk trade is reported to have taken place in Germany last week-end. Somebody discovered that one of the few things as yet not *verboten* to non-Aryans was the registering of luggage from railway stations both to domestic and foreign destinations. This news spread with lightning rapidity. The result was that by Saturday night there was hardly a shop in the country where a trunk could be obtained for love or money.—*Observer in "The Financial Times" of January 6.*

A man jumped into the last compartment of a train as it moved out of King's Cross. Putting his head out of the window, he shouted to a porter: "Am I right for Finsbury Park?" "Yes," yelled back the porter, "change at Edinburgh."

LINES WRITTEN ON THE OPENING OF THE GLASGOW, PAISLEY & GREENOCK RAILWAY, 1841

A correspondent sends us the following enthusiastic verses with which a local poet welcomed the linking by railway of Glasgow and Greenock in 1841:—

Hark! Hark! what is that in the distant plain
 Careering in thunder along?
 'Tis that fleet, fleet horse, with his railway train,
 Unerring, gigantic, and strong.
 Untired he approaches, unpurged he moves on,
 Though he sweats, pants and puffs all the way;
 No storm can o'erpower him, his strength is unknown,
 And he needs no repose night and day.
 On, on to the goal, over valley and mound,
 How wondrous and rapid his race,
 Afar as he speeds, rock and river resound,
 'Neath the tread of his firebrightened pace.
 His rival the ship, with stern, rudder and sail
 Now lashing along in her pride,
 He leaves far behind to the sport of the gale,
 And the surge of the billows and tide.
 Today in his triumph, on summit and tower,
 To welcome him wait the gay crowd;
 He comes in the pride of his beauty and power,
 Saluted with cheers long and loud.
 Encircle his brow with a branch of Green-oak,
 Let a statue of Watt him bestride;
 To the bright car of commerce, the gallant steed yoke,
 And with him round the world we'll ride.
 W. M'G.

It is not generally known that Jerome K. Jerome at one time worked in South Wales. Before he took to writing he was a clerk in the employ of the Great Western Railway at Swansea.—*From the "Western Mail."*

A COMMERCIAL TRAVELLER'S TRICK

The commercial traveller of a Philadelphia house, while in Tennessee, approached a stranger as the train was about to start, and said:—"Are you going on this train?" "I am." "Have you any baggage?" "No." "Well, my friend, you can do me a favour, and it won't cost you anything. You see, I've two rousing big trunks, and they always make me pay extra for one of them. You can get one checked on your ticket, and we'll euchre them. See?" "Yes, I see; but I haven't any ticket." "But I thought you said you were going on this train?" "So I am. I'm the conductor." "Oh!" He paid extra, as usual.—*From "The Railway Official Gazette" of January, 1882.*

AND THE TRAIN RUNS OVER THEM!

A sleeper is one who sleeps. A sleeper is that in which the sleeper sleeps. A sleeper is that on which the sleeper which carries the sleeper while he sleeps runs. Therefore while the sleeper sleeps in the sleeper the sleeper carries the sleeper over the sleeper under the sleeper until the sleeper which carries the sleeper jumps off the sleeper

and wakes the sleeper in the sleeper by striking the sleeper under the sleeper, and there is no sleeper in the sleeper on the sleeper.—*From the "Chicago Railway Review" of 1882.*

PUTTING "PUNCH" INTO "ON TIME"

The railway companies advertise that they are running more late trains and more early ones during the Christmas holidays. Unfortunately no mention is made of more punctual ones.—*Charivaria, December 28, 1938.*

The pioneer air race from London to Manchester in April, 1910, between Mr. Claude Grahame-White and M. Louis Paulhan, was recalled by the retirement on Christmas Day of Mr. F. E. White, Head Controller in the L.M.S.R. District Control Office at Rugby. He was telegraph operator in the signal box at Roade junction (Northants) on April 27, 1910, when Mr. Grahame-White came down at the end of the first stage of his flight. The airman landed in a small field beside the line and went to the signal box. Among Mr. White's treasured possessions is a leaf torn from the signal box book which contains the signature of his distinguished namesake.

Willie, on the way to Bristol,

Full of beans and youthful fire,
 Tried to stop, at point of pistol,

The advancing Cheltenham Flyer.

As the burial rites concluded,

Mother said, to Great Aunt Jane:

"Willie, though perhaps deluded,

Never yet has missed a train."



A handshake of congratulation for restaurant car attendant Harry J. Dean, L.M.S.R., who, as recorded in our Personal columns last week, was awarded the Medal of the Order of the British Empire (Civil Division), in the New Year honours

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Labour Trouble on B.A.G.S.R.

Services on the B.A.G.S.R. suffered considerable disorganisation during the second week of November, due to a "go-slow" movement and partial strikes amongst the outdoor staff. The cause of the trouble was the action of the management in giving out to contract the work of cleaning and disinfecting its passenger coaches, the personnel entrusted with this duty having failed to maintain the required standard of hygiene and cleanliness of the vehicles. These men, to the number of several hundreds, were transferred to other work, but protested against this change on the grounds that it prejudiced their pension and promotion prospects. The tactics at first adopted were those of "working to rules," followed by a series of partial stoppages of all movement for periods varying between 15 and 30 min. adroitly timed to coincide with the rush hours, to the serious inconvenience of suburban travellers. The movement was, however, not confined to the local section and extended to Bahia Blanca, Tandil, Olavarría, and other points on the main line. Although no acts of sabotage were reported, the company closed the mechanical workshops and the Stores Department, as a temporary precaution.

In view of the defiant attitude of the men and fears that the conflict might extend to other railways, the President of the Republic instructed the Minister of Public Works (Señor M. R. Alvarado) to summon the leaders of the Union Ferroviaria and La Fraternidad to a meeting at Government House for the purpose of discussing the question in the presence of the Director-General of Railways. Mr. J. M. Eddy, Director of the company, and Major O. Loewenthal, General Manager, also had an interview with the Minister. After a series of discussions between the representatives of the Government, the railway, and the unions, it was announced that an agreement had been reached. The basis of this was that the company's arrangements with the contractors for the cleaning of the carriages should remain in force until the end of the present year at Plaza Constitución, Remedios de Escalada, La Plata, and one or two other points; while at Bahia Blanca, Mar del Plata and Km. 2 the work will be done by the railway staff, under the surveillance of the Government officials. Before the expiry of this period, the National Railway Board will report to the Minister of Public Works on the result of the official inspection, with a view to the drawing up of regulations for the carrying out of the work by the railway administration.

Although the railway company's position has been vindicated, it is perhaps, a little regrettable that the Government did not see its way to take a stronger line with the unions, especially bearing in mind that, in the present instance, the company is involved in a double loss by having to give out to contract duties which its own staff has failed to perform efficiently, while at the same time retaining that staff in the service. Furthermore, the dispute has again served to show up the obsolete character of the working regulations under which the railways are forced to operate, and which are now so much out of date that their practical application is a clog on efficiency; while their retention, besides being an anachronism, furnishes the men with a ready-made weapon to turn against their employers when it suits them to use it. The abolition of these antiquated rules and the substitution of others framed in accordance with modern conditions, is one of the many overdue reforms in the organisation of the Argentine railways, the urgency of which the companies continue to press as strongly as possible upon the Government.

Return of Wage-cuts on Santa Fé Railway

By a resolution of the Ministry of Public Works, the above railway has been ordered to return to its employees the wage retentions for the months of May and June of the current year, amounting to \$78,659 paper. This resolution is based on the results of the periodical revision of the accounts of the railway companies by the National Railway Board, deductions from salaries and wages only being permissible if earnings do not reach a certain level.

BRAZIL

Viação Ferrea Federal Leste Brasileiro

This railway ranks among the most important in Brazil and, with its 2,000 km. of line serving large productive zones in the States of Bahia and Sergipe, is destined to play a big part in the development of the north of the country. Taken over from the Companhia Ferroviaria Este Brasileiro by the Union in 1935 in a dilapidated and disorganised state, an immediate reorganisation of its finances was necessary, but special grants for track renewals, re-equipment of workshops, repairs to rolling stock, and the construction of new stations, have resulted in the normal running of trains and an increase in receipts from 13,280 contos in 1934 to 20,000 contos in 1937.

In addition to a general plan of extensions, recent improvements include the acquisition of four diesel railcars

for the São Salvador suburban service and the opening of two new stations at Periperi and Lobato on the same section. At the time of the opening ceremony of these stations the maiden trip took place of the first train composed of coaches built entirely in the railway's own shops and known as the Trem Azul (Blue Train). Interest has also been aroused by a new composite train termed the Trem de Alumínio (Aluminium Train) composed of eight steel coaches fitted with S.K.F. roller bearings and having 2-mm. aluminium panelling and equipped with modern seating, improved lighting, and electric ventilation to add to the comfort of passengers.

New Locomotives and Rolling Stock

Various orders have been placed in Germany, Belgium, and England for new locomotives and rolling stock, 6 Mikado engines, and 80 wagons of 30 tons capacity, having already been received from the first named country. Before February, 1939, a further 50 closed wagons, 70 open ones and 7 Mountain type engines are due in Bahia for mineral traffic. Three diesel locomotives are awaiting shipment at Liverpool.

Great Western Railway

Speaking on the situation of this railway when in Rio de Janeiro a short time ago, the Superintendent, Dr. Manoel de Azevedo Leão, stated that in addition to suffering the ills common to the other Brazilian railways, the Great Western had various drawbacks peculiar to itself. The depreciation of local currency, road competition, and excessive customs duties were most pronounced and the others arose from the impossibility of fulfilling the contract in force between the company and the Federal Government.

Continuing, he said that as no privileges in regard to exchange were possible, and no alteration in customs tariffs was considered wise at the moment, the railways were left with no alternative but to insist on some convenient form of road transport regulation and control. Seeing that the Government had interfered, directly and indirectly, in questions of policy regarding coffee, sugar, cocoa, and various manufacturing industries, it was difficult to understand why the authorities should allow a basic industry, like transport, on which all the others depended, to be ruined by uncontrolled and absurd competition. Still more incomprehensible was such an attitude when it was borne in mind that the Government was one of the big railway proprietors of the country, and that the railways were of paramount importance from a military point of view for national defence.

He went on to state that all the European countries and many in America—including Argentina—were regulating both passenger and merchandise road motor services, as it

was realised that concessions for such services should be granted only after careful study of the effects they might have on other forms of transport. Only in this way would it be possible to obtain co-ordination profitable to all concerned, including the nation.

Dr. Azevedo Leão went on to emphasise how acutely the Great Western Railway was suffering from the ills mentioned above, and how greatly financial stringency was reducing efficiency, curtailing re-equipment, and preventing really necessary repairs to bridges and permanent way. He drew comparison between the treatment meted out to Government railways and that to the G.W.R., to the disadvantage of the latter.

Brazil-Bolivia: New Lines

The Bolivian Chancellor has announced that the building of the new line from Corumbá to Santa Cruz de la Sierra, which is under survey at the present time, will be begun in March, 1939. The manufacture of special rails is already in hand in Poland. It is stated as probable that the two Presidents, Getulio Vargas and German Busch, will meet at Corumbá to attend the inauguration.

The exchange of instruments ratifying the treaties signed on February 25 in regard to Bolivian petroleum and this new railway between the two countries took place a short time ago at the Brazilian Foreign Office.

INDIA

Implementing Wedgwood Recommendations

An official statement has been issued setting forth the decisions of the Government of India and the action taken by it on the recommendations of the Wedgwood Committee. The important points on which the Government of India has come to definite conclusions include the railway contribution to the general revenues, depreciation and other reserve funds, and the popularisation of railway travel.

Contribution to General Revenues

In accordance with the recommendation of the Central Legislative Assembly in October, 1937, the question of writing off the arrear liabilities of contributions to the general revenues and the loans taken from the Depreciation Fund to meet losses, has been postponed till April 1, 1940, or until the fixation of the amount of railway capital which the Federal Railway Authority will owe to the Federation under Section 187 (1) of the Government of India Act has been settled, whichever is earlier. In the meantime, the payment of railway contributions to the general revenues has been resumed from 1937-38.

Depreciation Fund

The Government of India accepts the need for an adequate depreciation fund and in the light of past conditions agrees that a normal balance of Rs. 30 crores (£22½ millions) would not be ex-

cessive. It also agrees with the Wedgwood Committee's conclusion that it has not been established that contributions to the fund in the past have been unduly high. It is impressed with the necessity for a general reserve fund from which any deficit on working expenses and interest could be met in years of depression, so that railways shall not become a burden on general revenues at these critical times. The figure of Rs. 50 crores suggested by the committee as the amount to which revenue balances, after provision for depreciation, should be appropriated to such a fund is possibly a counsel of perfection. But the Government of India is inclined, provisionally, to the view that this sum should be borne in mind as a suitable maximum for a combined reserve fund, including the Depreciation Fund.

The railway reserve funds at the close of the year 1937-38 amounted, however, to only Rs. 19½ crores and the need of the general contribution to the general revenues in the present circumstances precludes any decision or action in regard to these matters or to the amortisation of capital at present, beyond the existing basis of the annual contribution to the Depreciation Fund.

Travel Facilities

On the question of the popularisation of railways, which formed the main theme of Mr. A. F. Harvey's presidential address at the recent meeting of the Indian Railway Conference Association, the Government of India memorandum states that so far no action has been taken to set up a separate railway information office, but full use is made of the information bureau, and an officer has been allocated by the bureau for dealing with railway publicity. Further, as an experiment, the Railway Board has, in collaboration with press agents in Calcutta, instituted a press campaign for third class traffic in the areas served by the E.I. and E.B.R.

In addition to the local advisory committees, certain railways have established what are called closer contact committees. The object of these committees is to encourage frank discussion on all commercial problems. General Managers and Chief Commercial Managers are always available for the discussion of commercial questions with their clients. Moreover, the members of the Railway Board in the course of their tours discuss railway transport problems with commercial bodies, and are always available during these tours for discussion with officers of the Provincial Governments. Similarly General Managers are always prepared to meet and discuss railway matters with officers of Provincial Governments. In several cases railways have been asked to nominate a member on provincial boards of communications.

As regards incivility on the part of the railway staffs, the Railway Board is in agreement with the committee that special steps are necessary to root out this evil, and it has invited remarks

and suggestions on the subject from the railway administrations.

Trial of Air-conditioning on the N.W.R.

From January 2 an air-conditioned coach will be attached to the up and down mail trains between Lahore and Karachi. This is in the nature of an experiment, and officers of the mechanical, commercial, and transportation branches have been deputed to travel in the coach and answer a questionnaire. Temperatures will be recorded. Stationmasters have been instructed to invite the public to patronise the compartments not occupied by these officers without any surcharge. The coach is on loan from the B.B. & C.I.R.

CANADA

New C.N.R. Dining Cars

Six new lightweight dining cars have recently been built by the Canadian Car & Foundry Company for the C.N.R., and are now in service on the International Limited, between Montreal and Toronto, and Ocean Limited, between Montreal and Halifax. These cars, which are 83 ft. long over end posts, are carried on six-wheel bogies, but due to the extensive use of Cor-Ten steel and even of lightweight Salamander hair insulation, they are approximately 9 tons lighter than previously-built cars without sacrifice of strength. They accommodate 40 passengers at a sitting, and are equipped with ice-actuated air-conditioning apparatus.

DENMARK

Snowstorm Causes Traffic Delays

A heavy snowstorm lasting from Sunday, December 18, to Wednesday, December 21, caused serious difficulties for traffic working. In some districts road traffic was completely at a standstill, many trains had to be suspended, and the remainder reached their destination several hours late. The storm clogged switches not electrically heated, causing delay to the Copenhagen suburban traffic. Several of the private lines had to suspend traffic.

New Train Ferry

A new train-ferry vessel was launched on Tuesday, December 20. It will be similar to the latest three diesel vessels for the Great Belt crossing in having three tracks, but will be a little longer and have a somewhat higher speed. The new ferry will go into service in May, and will make possible a considerable speeding up of the traffic. At present three Lyntog sets are taken over the Great Belt by one ferry, but in future the new ferry will take one set and another ferry the two other morning Lyntog units from Copenhagen. By rearranging the timings of these and the connecting trains, savings of time up to 2½ hr. and many new connections will be achieved.

NEW CORONATION SCOT TRAIN FOR U.S.A. VISIT

One of three new train sets for the Coronation Scot service of the L.M.S.R. has just been completed and is to be shipped on January 20 from Southampton for an exhibition tour in the U.S.A.

THREE new train sets are being provided for the Coronation Scot service of the L.M.S.R. between Euston and Glasgow, one of which has been advanced in construction so as to be ready to make an exhibition tour of parts of the U.S.A. prior to being placed in the New York World's Fair from April 30 to October 1. The train, which is representative of the latest British methods of design and construction, has been built at the company's Derby works to the designs of Mr. W. A. Stanier, Chief Mechanical Engineer, and incorporates new schemes of colour, decoration, upholstery, and lighting prepared by Mr. Brian O'Rorke, A.R.I.B.A. An important departure from the previous Coronation Scot trains is the introduction of the articulated principle with three bogies instead of four per pair of coaches. High-tensile steel has been largely used in order to minimise weight, the same object being helped by the extensive use of welding. Each coach of the two-coach units weighs about 30 tons, compared with 32 to 35 tons of a standard coach.

The arrangement of the vehicles, which were on private exhibition at Euston last Monday, is shown in the diagram overleaf. The sleeping car is, of course, not a normal part of the Coronation Scot's routine formation, but is included to demonstrate how night travellers are catered for on British railways. During the tour, Belfast linen will be exclusively used in the sleeping car and for the antimacassars in the day coaches.

Seating accommodation is 173 in the exhibition train, but will be more in the standard service trains; the weight of train without locomotive is 262½ tons, and with locomotive 427 tons. Controllable oil-filtered ventilation is in use throughout, whilst special features include large double windows to minimise noise and exclude dust, telephones connecting passenger compartments with the restaurant attendant, and the large-scale use of cork and asbestos flooring, lining, &c., to deaden sound and vibration. In other respects the construction follows generally the latest standard practice of the L.M.S.R. The solebar and cant-rails of high tensile steel channel section are combined as one unit, and the trussed longitudinal underframe members as another. Welded to the former are steel sockets to which the teak body pillars are bolted. Between the quarter light pillars the body framing is reinforced by steel diaphragms, which have angles spot welded along each vertical edge. These diaphragms are welded to the solebar, cant-rail, and sockets and attached to the timber pillars by bolts passing through the angles on the diaphragms. The steel body panels are welded in one unit extending between each pair of doors and secured by screwing to the timber framing and welding to the cant-rail at the top. The galvanised steel roof panels are welded in position to the roof members, which are themselves welded to the cant-rail. Air ventilation is provided in the bodyside and roof framework.

At one end of each articulated underframe the L.M.S.R. standard draw and buffing gear is fitted, and at the other end the Gresley type of articulation coupling. The bogies are of welded mild steel and have concentric bolster and side laminated springs in accordance with the design of those fitted on existing L.M.S.R. articulated stock.

Flush finish is prevalent, and the use of veneered panels

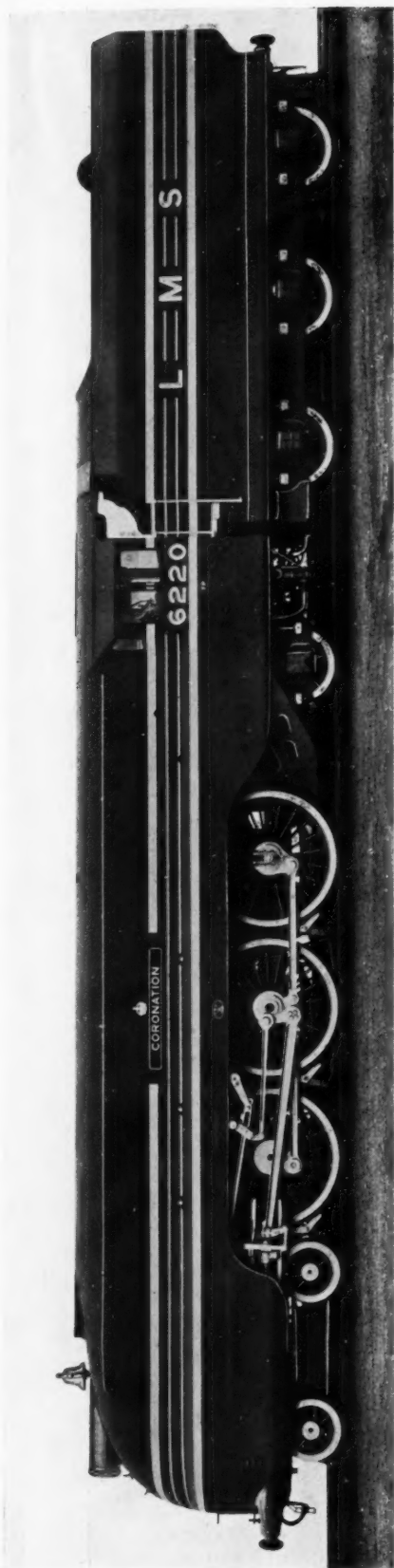
in the compartments contributes to this. In the dining saloons the walls and partitions are lined with leather on a felt foundation. In the lavatories the finish is in Rexine. Upholstery in the compartments is in uncut moquette, and in the dining saloons leather. Ivory enamelled finish is largely used upon the cornices and for ceilings. In the dining saloons the seats are arranged two on one side of the gangway and one on the other, except at the doorways, where double seats have been eliminated in favour of a group of single seats so as to provide ample space for the movements of passengers and attendants. Two new features are introduced in the cocktail lounge and the club saloon cars, in which the effectiveness of the special schemes of decoration, furnishing, and ventilation are apparent from our illustrations.

The kitchen car has many new features. Special attention has been given to obtaining a hygienic finish by the extensive use of Bakelite for the walls and ceilings. A range burning solid smokeless fuel and boiler of new design, finished in black enamel and chromium plate, are provided. Water in the tea boiler and hot water supply tank above the cooking range is heated by steam coils fed from the steam boiler adjacent to the kitchen sinks. The coal is fed to the hearths by an automatic gravity arrangement and is contained in hoppers fitted on the top of the boiler and cooking range respectively. The hoppers are housed in air sealed chambers accessible from the corridor, and the process of replacing an empty hopper with a fully charged spare one is quickly effected without dust. Forced draught is used for the fires.

The sleeping car is one built in 1936 of the latest L.M.S.R. standard type mounted on 6-wheeled bogies. Twelve berths, lavatory, and attendants' compartments are provided. The electric supply for the train is provided by generators suspended from the carriage underframe and driven by belt from the axles. This equipment is of the company's usual Wolverton type.

In the dining cars illumination is mainly indirect from fittings along the centre of the ceiling. The undersides of these fittings are in the form of a tray having louvred openings beneath each lamp thereby permitting some direct but obscure lighting. Supplementary lighting for the dining tables is provided by lamps over each window. In the cocktail lounge decorative wall panels supplement the lighting and the bar is illuminated by a circular fitting of opal glass provided with metal louvres. A combination of circular ceiling fittings and wall brackets is used in the club car. The corridor compartments are illuminated by brackets in the standard position for local reading with a fitting on the side wall over the entrance door for general lighting, the distribution from which is indirect. The brackets are so louvred that no direct light can strike the eyes of passengers. Electric cigar lighters are provided in the first class compartments. Stone's pressure heating and ventilating is used throughout the train, providing a complete air change every five to six minutes. Special provision is made for rapid pre-heating of the coaches and for automatic stoppage of the circulating fan in the event of a failure of the steam supply during cold weather.

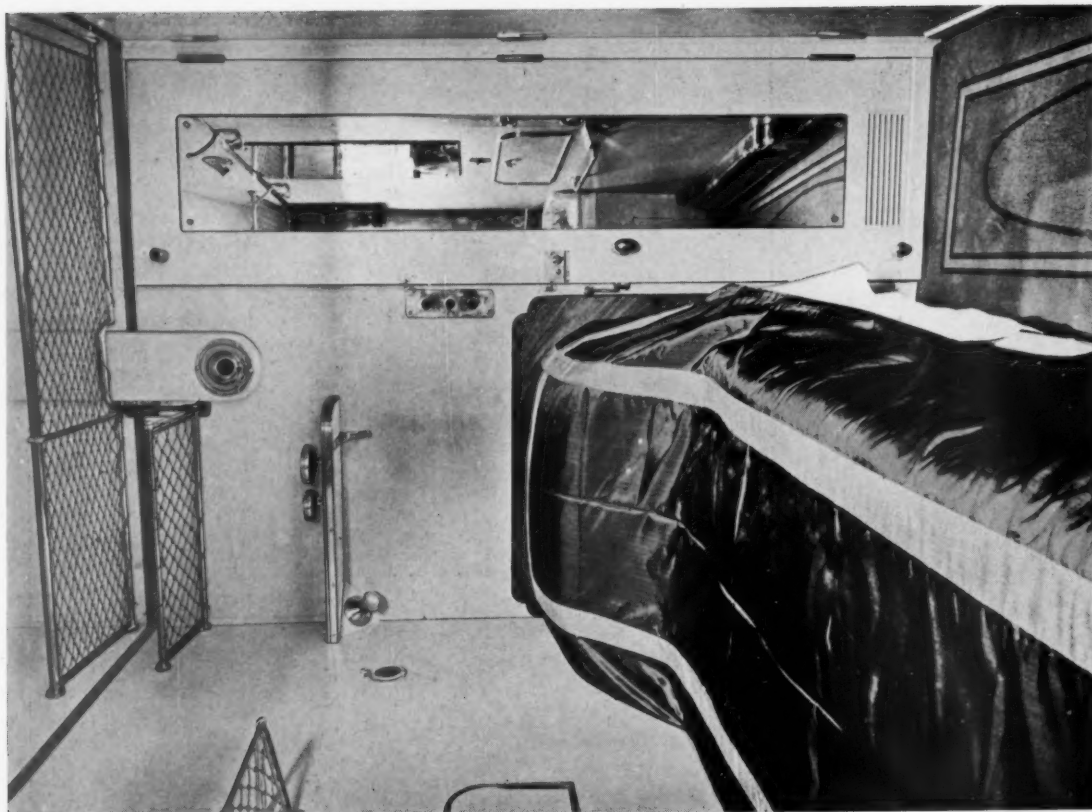
The locomotive which will haul the Coronation Scot throughout its American tour is one of the ten streamlined engines of the "Princess Coronation" 4-6-2 type, the first



Locomotive No. 6220, "Coronation," fitted with bell and headlight



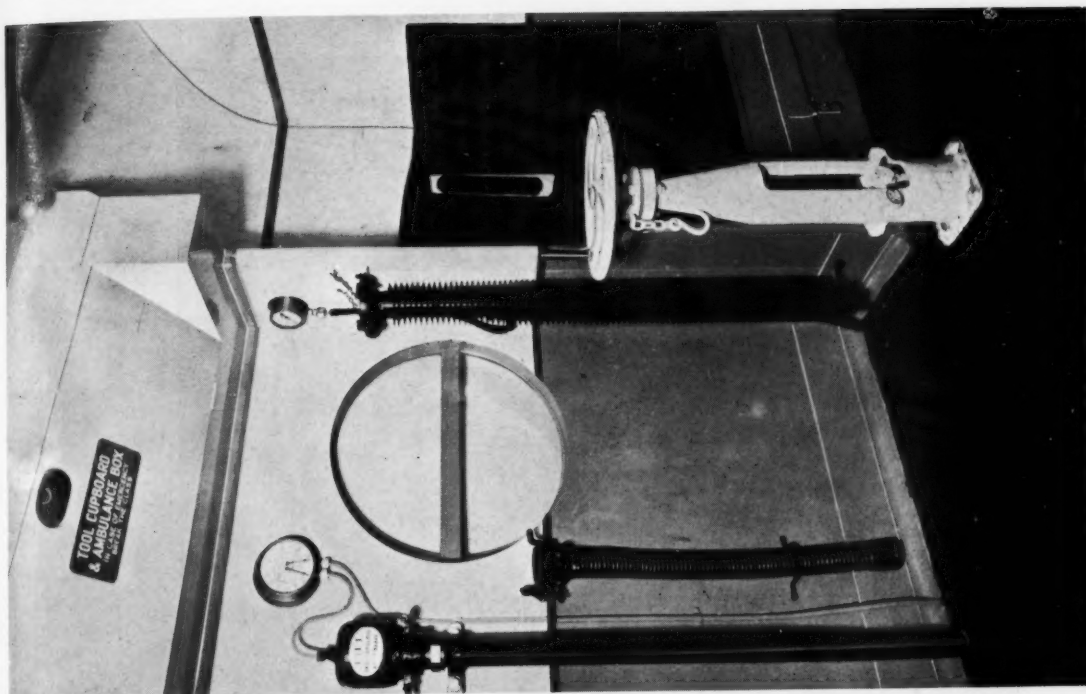
NEW L.M.S.R. CORONATION SCOT TRAIN FOR U.S.A. VISIT



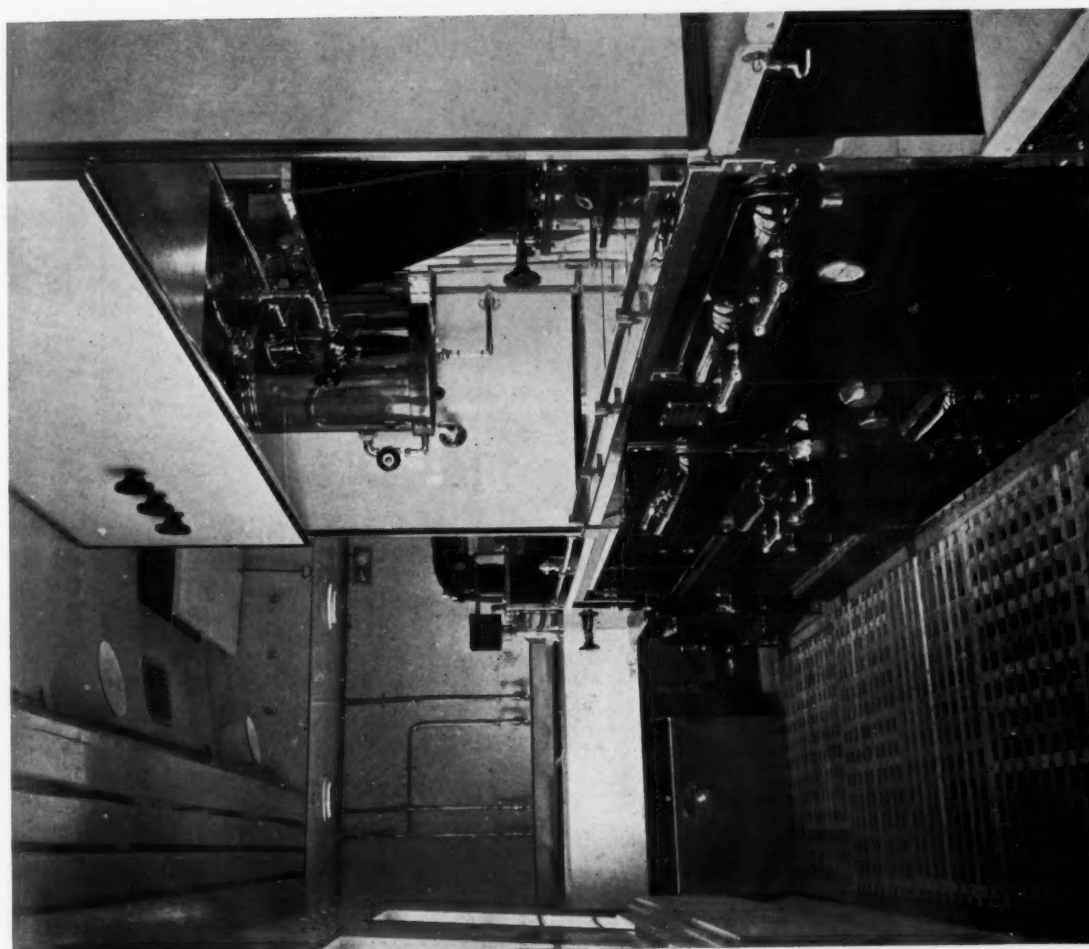
First class sleeping car



Corridor first class compartment



Guard's brake compartment



Interior of kitchen car

NEW L.M.S.R. CORONATION SCOT TRAIN FOR U.S.A. VISIT



First class club saloon

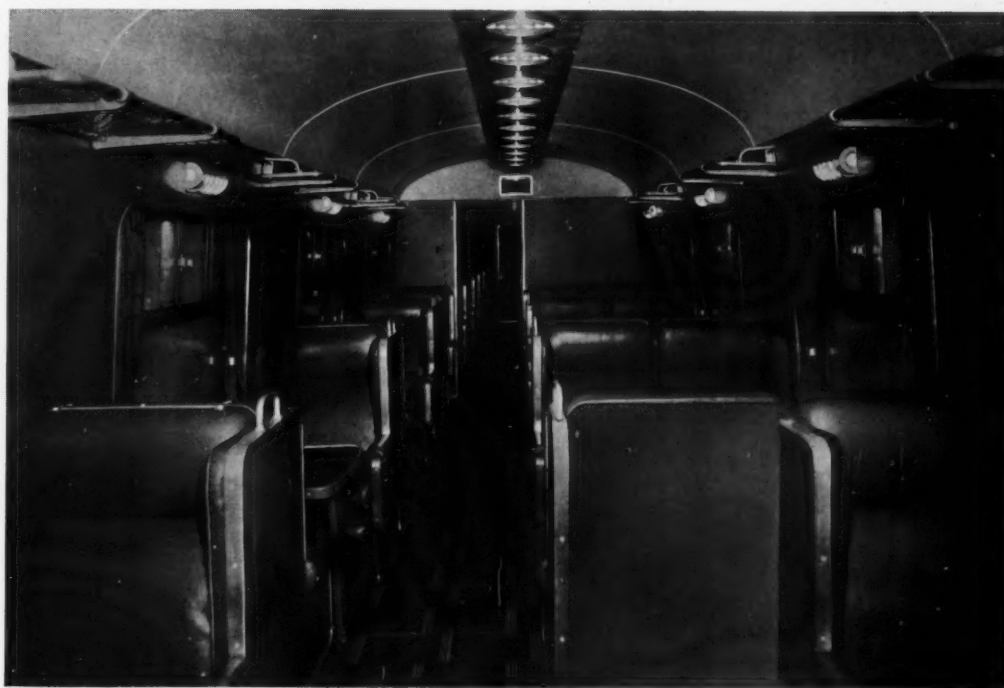


First class lounge and buffet car

NEW L.M.S.R. CORONATION SCOT



Corridor first class compartment showing telephone



First class dining car

TRAIN FOR U.S.A. VISIT

of which was built at the L.M.S.R. Crewe works in 1937; its principal dimensions are shown in the diagram, and a detailed description was given in THE RAILWAY GAZETTE of May 28, 1937. At present the Coronation Scot train in public service still carries the Coronation livery of blue and silver, but the train for America is in the standard L.M.S.R. livery of lake (with gold horizontal bands). Both engine and train are streamlined. Special equipment on the locomotive for its American tour are headlights, side floodlights, bell, spark arrester, and automatic couplers.

Principal Sub-Contractors

Among the firms supplying equipment for the new train are:—

Wheels and axles: Taylor Bros. & Co. Ltd.
High tensile steel for underframe, solebar, and body cantrails: Colvilles Limited.
Mild steel for underframes and bogies: Appleby Frodingham Iron & Steel Co. Ltd. Dorman Long & Co. Ltd.
Bogie concentric springs: Timmis Pilot brand, manufactured by Turton Bros. & Matthews Limited.
Special bogie laminated auxiliary springs: George Spencer Moulton & Co. Ltd.
Buffing and drawbar springs: George Spencer Moulton & Co. Ltd.
Brake cylinders: The Vacuum Brake Co. Ltd.
Lighting cells: Chloride Electrical Storage Co. Ltd.
Heating and ventilating equipment: J. Stone & Co. Ltd. Thermo-tank Limited (sleeping car).
Hot water boiler for cocktail bar: J. Stone & Co. Ltd.
Auxiliary generating set: General Electric Co. Ltd.
Body and roof exterior steel panelling: Smith & McLean Limited.

FLOORS

Dovetail sheeting: F. Braby & Co. Ltd. Lewis Construction Co. Ltd.
Cork flooring for dovetail sheeting: J. W. Roberts Limited.
Linoleum: Korkoid Decorative Floors.
Carpets: T. F. Firth & Sons. J. Templeton & Co. Ltd.
Insulating material for underside of floor and body walls and roof: J. W. Roberts Limited.
Lavatory floors, terrazzo material: J. W. Roberts Limited.

OTHER DETAILS

Bodyside door droplights: Beckett, Laycock & Watkinson Limited.
Sliding ventilator lights: Worcester Windshields and Casements Limited.
Roof ventilators (Monsoon type): Mead McLean & Co. Ltd.
Indiarubber gangway connections and valance for articulated ends of cars: George Spencer Moulton & Co. Ltd.
Veneered finishing panels and partitions for corridor: Flexo Plywood Co. Ltd. Saro Laminated Wood Products Limited.
Finishing veneers for compartments: Saro Laminated Wood Products Limited.
Hides for walls of dining and lounge compartments: Connolly Bros. Ltd.
Hides for seats of dining compartments: Connolly Bros. Ltd.
Corridor compartment seat upholstery: Edinburgh Weavers. Old Bleach Linen Co. Ltd.
Curtains: Edinburgh Weavers.
Rexine for lavatory walls and tables: Imperial Chemical Industries (Rexine) Limited.
Lavatory water heaters: Westinghouse Brake & Signal Co. Ltd.
Seat and seat back springs: Lace Web Spring Co. Ltd.
Dunlopillo fillings for head rest, arm rest, and side elbows: Dunlop Rubber Co. Ltd.
Electric light fittings: General Electric Co. Ltd.
Telephones: General Electric Co. Ltd.
Refrigerator for kitchen car: Frigidaire Limited.
Bakelite panelling for kitchen car: Bakelite Limited. Flexo Plywood & Co. Ltd.
Locks and handles: J. & E. Bates & Son. Joseph Kaye & Sons Limited. N. F. Ramsay & Co. Ltd. Yale & Towne Limited.
Ball bearings for sliding door gear: Skefko Ball-Bearing Co. Ltd.
Paint: Docker Brothers.

The train and locomotive will be shipped from Southampton Docks on or about January 20, in the s.s. *Bel-pamela*, and on arrival in the U.S.A. will be unloaded at Baltimore, and then assembled and made ready for the road in the Baltimore shops of the Baltimore & Ohio Railroad. The exhibition tour of 38 American cities and towns, covering 3,120 miles (the train travelling under its own power, with eight U.S. railroads and the Federal Interstate Commerce Commission co-operating in the move-

ments) will begin at Baltimore on March 21 and conclude at Hartford and New Haven, Conn., on April 14. The train will be placed on show at the World's Fair, New York, which opens on April 30.

The Farewell Ceremony

The new locomotive and train were placed on private exhibition at Euston station on Monday morning, and Lord Stamp, Chairman and President of the L.M.S.R., formally bade farewell to the engine crew. Guests of the company then inspected the coaches, in which were displayed the small tablets giving particulars in American currency of fares, restaurant car, and sleeping car charges, designed for the information of visitors to the train.

A luncheon to those who will accompany the train to America, attended also by representatives of the men who built the locomotive and coaches, was then held at the Euston Hotel. Lord Stamp presided.

Lord Stamp, in proposing the toast of the Coronation Scot and those who are to accompany it, said the decision to send the train to America was taken a long time ago, and much preliminary work had been done in that country as well as on this side. The World's Fair would be the greatest fair ever. Several years ago he had seen the magnificent site for the exhibition, which was then hundreds of acres of marsh and swamp land looking as if nothing could be done with it. A year later the site was a flourishing park. They had a splendid position for the transport exhibition, into which the Coronation Scot would run under its own power.

He was sure the Coronation Scot would come in for a great deal of admiration, and be a lasting credit to British workmanship and artistic design; and that on its tour it would have the same popular appeal as had been exercised by the Royal Scot. It was necessary to talk to people in America to realise what the Royal Scot had meant to engineers there. Results of great value arose from comparisons of this kind. They now had to beat the Royal Scot in the American imagination.

Lord Stamp referred to the invaluable advice of Mr. Brian O'Rourke in all matters pertaining to the artistic side of the train. Accompanying the train to America would be Driver Bishop, Fireman Carswell, and Master Mechanic Soden. Also at the luncheon were Mr. F. A. Lemon, from Crewe, representatives of all who had been concerned with the construction of the train, and Mr. T. F. Coleman (Chief Draughtsman), E. A. Langridge (Loco Draughtsman), and T. E. Chidlow (Carriage Draughtsman), all of Derby. Mr. R. A. Riddles was going to America with the train in charge of the engineering side, and they knew they could put him up against any of the American engineers. Colonel K. R. N. Speir would represent the L.M.S.R. for publicity in the United States. They were glad to have with them Mr. John Purves, whose award of M.V.O. in the New Year Honours was a source of satisfaction.

While the train was on view, Lord Stamp concluded, he had heard the most prosaic people breaking into poetry. Somebody had said it was the *Queen Mary* of the iron road. Another comment was that it was impossible to look out of the windows because it was so attractive inside. They knew that all who were going with the train to the U.S.A. would uphold the traditions of the L.M.S.R. and of Great Britain.

Among those who attended the send-off ceremony were:—

Lord Stamp, Sir Harold Hartley, Mr. E. J. H. Lemon. Messrs. O. Glynne Roberts, G. Morton, H. V. Mosley, G. Royde Smith, G. L. Darbyshire, T. M. Herbert, T. E. Argile, K. R. N. Speir, T. W. Royle, S. H. Fisher, F. A. Pope, D. C. Urie, E. H. d'E. Darby, W. A. Stanier, C. E. Fairburn, J. Purves, R. A. Riddles, F. A. Lemon, G. H. Loftus Allen, W. C. Brudenell, D. S. Barrie.

ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

London Transport Further Bus Power Proposals

THE London Passenger Transport Board Bill for the coming Session contains a clause of some interest, No. 44, headed "Further power to board to run public service vehicles." Subclause (2) of this clause is as follows: "Notwithstanding anything in the Act of 1933 it shall be lawful for the board with the consent of the Traffic Commissioners to provide road services of stage and express carriages on any road outside the London Passenger Transport Area for the purpose of reaching any place which is (a) adjacent to the boundary of that area; and (b) in the opinion of the Traffic Commissioners not being and not likely within a reasonable period to be provided with efficient and convenient services by another person." These proposed powers are, however, limited by the proviso in subclause (9) that nothing in Clause 44 shall enable the board to run any service of stage or express carriages outside the London Passenger Transport Area except within a radius of ten miles or in the County of Kent five miles from any point on the boundary of that area. Under Section 18 of the London Passenger Transport Act, 1933, the board already has power by agreement with other operators to run services within the ten-mile and five-mile limits just mentioned although these powers have not so far been exercised. The appropriate Traffic Commissioners are given under the Bill power, after a public inquiry, to sanction, with or without conditions, or to reject, any of the proposed new services, and there is a final appeal to the Minister of Transport.

Efficiency of the Provincial Bus Industry

IN bygone years Mr. Sidney E. Garcke frequently drew attention to the ill effects of multiplicity of ownership in transport and to the efficiency that might be obtained by some enlargement of the comparatively small provincial bus businesses then in existence, and by the elimination of wasteful overlapping. As he pointed out recently when presiding at the meeting of the East Kent Road Car Co. Ltd., such remarks would be inappropriate today, for the business of that company, for example, has reached a size which enables it to employ all the skilled personnel and special equipment requisite for efficient operation, and yet on the other hand it is not so big as to be in any way unwieldy. The efficiency of the provincial bus industry is common knowledge, and Mr. Garcke remarked that it was safe to say that much of this was due to a form of organisation which, while securing the benefits of inter-company consultation resulting from some directorial and financial interlocking, has left every undertaking as an independent unit. In recent years, said Mr. Garcke, an erroneous idea had been growing, in regard to public utilities in particular and industry in general, that the amalgamation of smaller units into very large organisations necessarily brought efficiency. While all the ills of State boards and other forms of large commercial activity could not be attributed to "over size," at any rate he felt that it must have contributed to the failure—partial in London and complete in Northern Ireland—of the only "transport board" experiments so far tried. Many other top-heavy organisations outside the transport movement came to mind where on the face of it efficiency was greater

before the smaller units were fused. Mr. Garcke expressed the hope that "the mania for magnificent unwieldiness so often followed by extravagance and inflexibility" would not attack the provincial bus business. Some 30 to 40 substantial and financially linked companies own between them about 20,000 buses at the present time, and, if regarded as a unit, this group would constitute one of the world's largest transport organisations. Every one is virtually a separate undertaking, however, and has its own area to look after. Constituted thus with individualism as its basis the industry should be able to maintain its present efficiency, and Mr. Garcke said he was satisfied that the public was better served this way than by the creation of more area boards.

Co-ordination in South Australia

THE increase in the number of commercial motor vehicles in South Australia, and the consequent diversion to the roads of a considerable proportion of the traffic previously carried by rail, has given rise to a serious diminution in the revenues of the Government Railways there. Recent railway deficits are said to involve a burden on the taxpayer of as much as a million pounds a year. Intervention by the Government in the road and rail situation first took place in 1926, when a Royal Commission made certain recommendations. In 1930 the industrial depression made it necessary to review the position afresh and as the result of the findings of another commission, a Transport Control Board was constituted and is still in office. In the light of experience now that eight years have elapsed, and with the emergence of the State from the depression, it is felt that the system of control exercised by the board has not been wholly successful in achieving its objects, either in the regulation of road transport, or in the maintenance of the intended equilibrium of the railways. A new Royal Commission was therefore appointed and has now issued its report. The Commission commends the actuation of the Transport Board and considers that it should be continued. It appears, however, that the present system is not altogether efficacious and it is considered that a more rigorous observance of the regulations should be exacted. The report contains a draft Bill providing for the continuance of the present Transport Board and system of control, but with certain amendments and additions which it is believed will make the actual control more effective, and tend towards a more complete co-ordination between rail and road transport. Incidentally the report contains some interesting figures of cost of operation of commercial road vehicles and motor services. The number of motor vehicles on the register at the end of August, 1938, was 23,741, of which 292 were commercial passenger vehicles, and 23,449 goods.

Fixed Bus Stopping Places in London

MORE than once we have commented in these columns on the progress which is being made in the establishment of fixed bus stops in the Metropolitan area, and on December 14 last the London Passenger Transport Board extended the system on a further 24 miles of route in south-west London, including parts of the boroughs of Mitcham, Wandsworth, Battersea, and Lambeth. For many years the L.G.O.C. endeavoured to

educate its passengers to use specified stopping places, but the company's efforts met with only partial success, as Metropolitan stage carriages were required by law to stop at any point on being hailed. In the changed circumstances of the Road Traffic Act of 1930, the London Passenger Transport Board arranged that from March 20, 1935, its buses should stop only at indicated compulsory or request stops on the $5\frac{1}{2}$ miles of route between Euston Road and Seven Sisters Corner. The experiment has since been extended from time to time and now embraces 310 route-miles. Fixed bus stops are introduced in a new area on a trial basis of three months. The position on the road of every stop is determined in the first place by London Transport officials who have a close knowledge of the movement of passenger traffic on all the roads in the area. A list of the proposed stops, both compulsory and request, is placed before and discussed by the Stopping Places Advisory Committee of the Ministry of Transport, which includes representatives of the Ministry, the Metropolitan Police, the Traffic Commissioners, the Transport & General Workers' Union, and the London Passenger Transport Board. The suitability of the sites finally adopted by the committee is considered again after they have been in use for the trial period of three months, and alterations are made if necessary. As many as possible of the signs are fixed to existing supports, and, for example, of the 272 signs needed for the 24 miles of road involved in the December scheme, 100 were fixed to lamp posts; a few were attached to trolleybus standards; and most of the others formed part of specially-erected pillars about 12 ft. high. These posts are cast in terrazo—a mixture of concrete and marble—and include half-way up the post a frame for bus timetables.

German Motor Roads in 1938

AT various times during the summer of last year we were afforded facilities for examining long sections of the *Reichsautobahnen*, both in course of construction and also in full operation, and we remember while in the neighbourhood of Berlin being shown a section of the ring-road being built, and at the same time being informed that the aim of the *Autobahnen* organisation was to bring the total of route miles in operation up to 3,000 kilometres by the end of 1938. By a coincidence it was this section of road, near the Berlin suburb of Rangsdorf, that proved to be the location of a ceremony held on December 15 on the occasion of the formal opening of the 3,000th kilometre. The actual ceremony was performed by Dr. Todt, and on the evening of the same day Herr Hitler addressed 3,000 roadworkers who were guests of the Government for the occasion. The same day marked the completion of the southern section of the *Autobahnen* which will shortly encircle Berlin; at six other points in the neighbourhood of Berlin small sections were opened on the same day bringing the total length open of the *Reichsautobahnen* to 3,063 kilometres (1,903 miles). From time to time we have referred to the construction progress of the motor roads organisation, and 1938 also marked a development in another sphere. A law passed on June 1, 1938, produced a similar change to that which was effected in the previous year with the *Reichsbahn* itself, namely, the conversion of a Government-controlled company into a full department of the State under the Minister of Transport. The company previously responsible for the construction and working of the *Reichsautobahnen* under the provisions of that law became a branch of the regular Civil Service and those engaged in its work have become formal State servants. The General Inspector of Highways, Dr. Todt, who supervised the work of the company on behalf of the State, became Chairman of

the board of management of the *Autobahn* department. The advisory board remains (with a slight change of title that is of no importance when translated), and the Minister of Transport, at present Dr. Dormmüller, General Manager of the State Railway, is its Chairman. The *Reichsbahn* officials who were transferred to the *Autobahnen* for construction work remain at their posts and the co-operation between the two great transport systems is to be even closer than before, both being combined to serve public policy in accordance with the ideals of the régime. Territorial extensions of the Reich have twice widened the area of activity of the *Reichsautobahnen* organisation during the past year. On May 20, 1938, a chief construction office was set up in Vienna to supervise the building of national motor roads in the incorporated territory of Austria, to work alongside a similar office at Linz and control the divisional office at Mödling established a short time previously. The subsequent acquisition of Sudetenland resulted in the extension of the motor roads planning to that area, and (as we recorded on December 16) also led to the first extra-territorial activity, namely, the great motor highway to be built across Czecho-Slovak territory.

Road Transport Tariffs in Spain

THE Local Transport Board for Andalusia has published the legal maximum tariffs and regulations for public merchandise transport in the district. Under the regulations all licensed vehicles are obliged to accept all classes of merchandise for transport in all directions at prices not exceeding the maxima now fixed. A licensee cannot refuse to take a load offered, or charge more, on the pretext that he has no return load, and on the other hand the consignor has the right to contract the vehicle for both outward and return journeys. The surcharge on road transport now being levied to compensate owners of vehicles requisitioned for military purposes is payable by the licensee in the case of merchandise traffic (in consideration of the increase in tariffs) but by the passenger in the case of passenger traffic. For the purposes of fixing the maximum tariffs, vehicles are classified in three categories: the first, not exceeding four tons capacity; the second, up to seven; and the third, seven and over. The maximum tariffs are as follow: first category, 0.50 pesetas per ton-km.; second category, 0.35 pesetas; and third, 0.30 pesetas per ton-km. At exchange 42=£, the 50 centimos tariff is equal to just over 4½d., and the 35 centimos, to 3½d. per ton per mile. According to the regulations, when the journey includes running over secondary roads or lanes, the tariff may be increased by 25 per cent., and for loads of extraordinary dimensions or bulk the charge may be based on the capacity of the vehicle. Consignors are obliged to effect and take delivery at the lorry side, and the time fixed for delivery is 25 minutes, with extra payment for waiting time in excess. Any licensee contravening the regulations, shall be subject to penalties, including the impounding of his vehicle.

RAIL WAGON CONVEYANCE BY ROAD IN SWITZERLAND.—In connection with our short illustrated description of the road units recently introduced by the Swiss Federal Railways for the conveyance of standard-gauge goods wagons (published on page 876 in our issue of November 18 last), we have been advised by Mr. W. W. Adam, the British Representative of the Società Italiana Ernesto Breda, that these vehicles were designed and constructed by the Breda Company in Milan. It will be remembered that in 1935 similar vehicles were supplied by the Breda Company to the Italian State Railways.

The Vauxhall Cross Improvement

Brief details of an outstanding and complex traffic re-routing arrangement to obviate acute congestion. It involved the construction of new streets and a novel railway underbridge

UNDoubtedly, the most outstanding road traffic rearrangement in London during 1938 was that in the neighbourhood of Vauxhall station, Southern Railway. The re-routings involved were brought into use in stages over a period of three months, and the accompanying sketch maps show respectively the layout before the improvement scheme was begun, and the present layout now that the new arrangements are in full use.

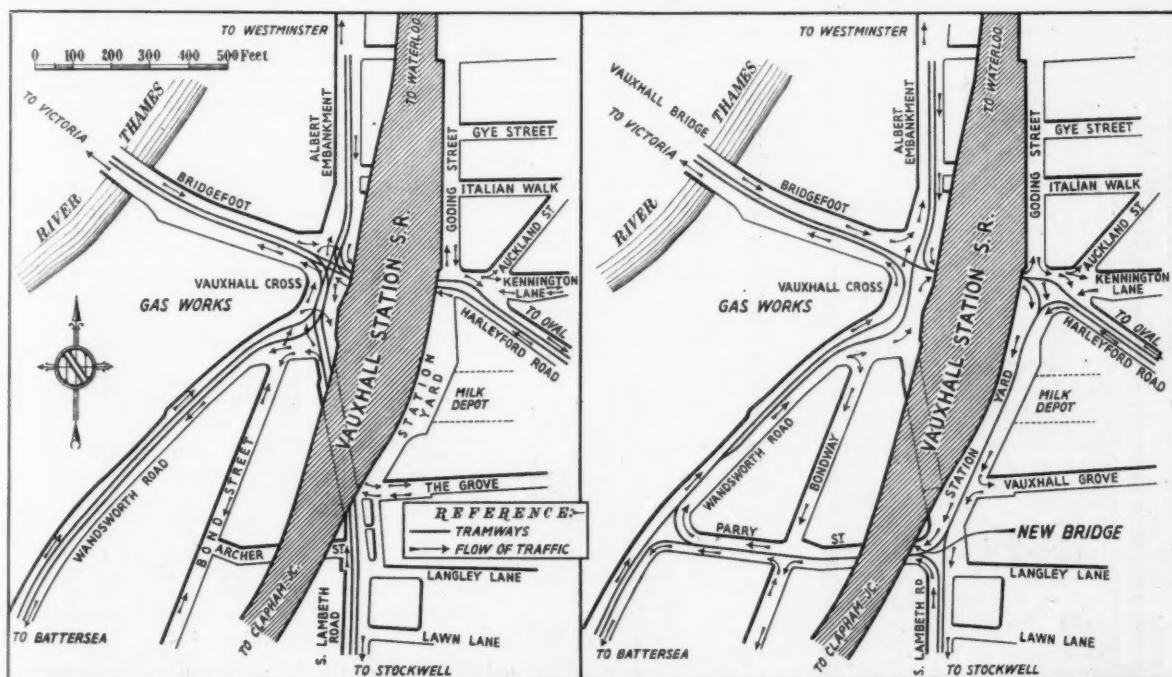
For many years past, the increasing road traffic congestion at Vauxhall Cross has provided a problem urgently demanding a solution, but the physical difficulties involved have deterred speedy action. These difficulties will be appreciated when it is seen from the first map that (a) no fewer than five main roads—none of them straight, and all carrying double-line tramway tracks—meet at this point, and (b) two of these roads are crossed by the Southern Railway main line on wide bridges (that over South Lambeth Road increased in width by the acute 24° angle of the crossing) which seriously impair visibility.

This railway line was opened on July 11, 1848, and constituted part of the extension of the old London & South Western Railway to Waterloo. The original brick viaduct accommodated four tracks. The widening of this viaduct for six tracks was completed in 1891 under the direction of Mr. A. W. Szlumper, afterwards Chief Engi-

neer of the L.S.W.R., and father of the present General Manager of the Southern Railway. A further widening to eight tracks was undertaken in 1898 and completed in 1906. Even then the bulk of the road traffic passing underneath was horsedrawn, but the electrification of the tramways and the mechanisation of the bus services within the next few years resulted in a considerable increase in traffic density.

One of the great difficulties in the way of a comprehensive re-routing scheme was lack of alternative roads, and as long ago as April 28, 1925, a member of the Southern Railway staff made the suggestion to the Ministry of Transport that, to relieve the traffic congestion at Vauxhall Cross, a short new road should be made from Wandsworth Road to Bond Street, which in conjunction with the widening of Archer Street and the use of the Vauxhall station yard for through public traffic, would afford a by-pass. Although this idea was not adopted, the scheme actually carried out was very similar. In 1925 roundabouts at traffic intersections were not in existence in London, but when plans for the present arrangements were drawn up—in 1930—the advantages of what were officially termed circumambulatory roads had already been proved.

A scheme proposed in 1931 by the London County Council, when just over 30,000 road vehicles crossed Vauxhall Cross every day during the 12-hour period from



Left: The road traffic arrangements in the neighbourhood of Vauxhall station prior to the beginning of the Vauxhall Cross Improvement scheme. Right: The present roundabout traffic routing made possible by constructing new streets, rebuilding the Southern Railway bridge over Parry Street, and providing a new tramway layout

8 a.m. to 8 p.m., was estimated to cost £617,000. Ultimately, however, the plans carried out were completed at a cost of some £336,000, towards which the Minister of Transport made a Road Fund grant of 60 per cent. In addition to the L.C.C., the co-operating authorities included the Southern Railway, the Lambeth Borough Council, and the London Passenger Transport Board; the last-named, of course, took over the L.C.C. Tramways and the London buses in 1933. The principal works involved, which took three years to complete, were as follow:—

(a) Conversion of the Vauxhall station yard into a public highway.

(b) Widening of Archer Street from about 40 ft. to 54 ft., involving the rebuilding of the bridge carrying the Southern Railway over that thoroughfare.

(c) Demolition of (somewhat dilapidated) property between Bond Street (now Bondway) and Wandsworth Road, and construction of an extension of Archer Street through to Wandsworth Road; the widened and extended road was renamed Parry Street in January, 1938.

(d) Construction of conduit tram tracks through the station yard and along Parry Street, and rearrangement of track layout for roundabout working.

The result was to enable a large roundabout, over half a mile in length, to be formed. In addition to the roads constituting the main portions of the actual roundabout, Bondway has been made a one-way street and the section of South Lambeth Road under the Southern Railway has been made one way for southbound traffic from Wandsworth Road.

Dates of Permanent Traffic Changes

The following particulars show the stages in which the new traffic arrangements were brought into force. It will be noticed that in every case the trams were changed over first.

1.—Diversion of up traffic from South Lambeth Road via Parry Street, the new street, and Wandsworth Road:—

(a) Trams—April 3, 1938.

(b) Other traffic—April 11.

2.—Diversion of down traffic from Vauxhall Bridge to South Lambeth Road via Kennington Lane and Station Yard (new street):—

(a) Trams—May 15.

(b) Other traffic—June 20.

3.—Diversion of up traffic from Harleyford Road via Station Yard (new street), Parry Street, the new street, and Wandsworth Road:—

(a) Trams—May 15.

(b) Other traffic—May 26.

4.—Diversion of down traffic from Vauxhall Bridge and Albert Embankment to Wandsworth Road via Kennington Lane, Station Yard (new street), Parry Street, and the new street:—

(a) Trams—May 23.

(b) Other traffic—June 20.

New Bridge under Southern Railway

As previously mentioned, the widening of Archer Street (renamed in January, 1938, as Parry Street), necessitated the lengthening of the span of the bridge under the railway immediately west of Vauxhall station, on the Western Section main line of the Southern Railway. The old bridge consisted of a segmental brick arch on a slight skew with a span of about 40 ft. measured on the square, and the corresponding dimension of the new bridge is 54 ft. As it was impracticable either to raise the level of the railway or lower that of the roadway, in order to maintain the headway between the two, means had to be devised for increasing the span without any increase of the measurement between the underside of the centre of the bridge and rail level. Normally, this

might have been achieved by substituting through-type steel girders to carry the eight railway tracks, but the presence of crossovers and space limitation precluded this method.

Accordingly an ingenious and unusual type of bridge span was designed, which, by resorting to cantilever principles, enabled steel girders—seven in number and 103 ft. in length—of comparatively shallow depth at the centre of the span to be used. As the accompanying illustration of one of these girders shows, there are pivotal bearings 72 ft. 6 in. apart at B and C, the former fitted with roller bearings to allow for expansion. The girder extends beyond these anchorages, each consisting of two 5-in. round bars pre-stressed by hydraulic jacks to provide a holding down force of 300 tons at each end of the girder. Details of the flexible connections in the anchorage at A and of the rocking or pivotal bearings of the girder are also illustrated. It is clear that as the AB end of the girder is free to move under expansion or contraction, a specially flexible anchorage is required at A, to allow for both longitudinal and circular movement about B, whereas that at the other end of the girder has to cater only for circular movement about C, due to varying load and deflection.

The carrying out of the work under traffic necessitated the construction of the new bridge piecemeal, and as sections of the old brick arch were cut away, the tracks were shored up. The actual substitution of the new for the old bridge began in the autumn of 1935 and was completed before the summer railway traffic of 1936. The bridge was constructed at the cost of the London County Council under the supervision of Mr. G. Ellson, Chief Engineer of the Southern Railway, in collaboration with Mr. Peirson Frank, Chief Engineer of the London County Council.

New Zealand Railways Road Services for Goods

DURING the year ended March 31, 1938, the New Zealand Government set up a tribunal to deal with the purchase of goods road services where such action was considered desirable, and this tribunal has already made recommendations respecting a number of services, which have been approved by the Government. At the end of the financial year arrangements were well in hand for taking over these services by the Railways Department. The first was taken over in May, and the work in connection with the other services is proceeding rapidly. At the end of the financial year 26 lorries were in operation by the Department. Apparently it did not itself operate road services for goods before the change of control which took place on April 1, 1936, when the Railways Board was superseded by direct Government management. A very large measure of co-ordination had, however, been brought about during the year ended March 31, 1935, on four important routes, namely Christchurch—Timaru and Christchurch—Ashburton in the South Island, and Wellington—Palmerston North and Wellington—Napier in the North Island. Competition from road services on the last-mentioned route was thereby almost entirely eliminated. The Railways Department placed a lorry in service between Lumsden and Queenstown in the South Island in May, 1936, and later in the year acquired goods services licences from private owners on the following routes in the South Island: Dunedin—Balclutha, Hokitika—Corks River, Ross—Okarito Forks, and Ross—Weheka. At the close of the financial year on March 31, 1937, the Department possessed 18 lorries. Reference to recent absorptions of long-distance road services is made in an overseas note on page 66.

Level Crossings

League of Nations proposals for an international conference to unify signs and signals

(From a correspondent)

AN invitation has been sent out to all Governments by the Secretary General of the League of Nations for a conference on the unification of signals at level crossings, to be held in Geneva on April 17, 1939. A long international inquiry has resulted in a draft convention, subsequently to be presented for approval, signature, and ultimate ratification by those Governments.

Changing Conditions

Demand for uniform legislation has arisen owing, in the first place, to the growing volume of international traffic on Continental roads, the increase in speed of both road and rail vehicles, and the number of accidents constantly recorded at level crossings. It is agreed that the best course would be to abolish the latter altogether and replace them by underground or overhead crossings, a recommendation to this effect being appended to the proposed convention, but of course there are financial difficulties. It is suggested, however, that, in principle, no level crossings should be made on new lines and that they should be reduced to a strict minimum even on secondary lines. It is also recommended that the most favourable conditions as regards visibility, both on railway and road should be ensured. The steady increase in the speed of motor vehicles, in the size of motor coaches and lorries and in the speed of main-line and railcar trains necessitates a reconsideration of the existing systems of safety measures. It is of the first importance that road users should know what warning to look for and that it should be conveyed in good time.

Anyone who has travelled much on Continental roads, where level crossings are far more common than in England, is familiar with the warning triangular signal bearing the picture of a gate or an engine, where the crossing is guarded, and the single or double St. Andrew's cross, where a crossing over a single or double track is unguarded. These signals, though widely used are not uniform everywhere, nor do they attract sufficient attention at night.

Classification of Crossings

Level crossings are of three kinds: with gates; without gates, but with automatic signals; and with neither. Safety measures should be different for each, if their special dangers are to be guarded against. At crossings with gates it is proposed to place triangular approach signals, bearing a picture of a gate, the post being painted in red and white or red and yellow transverse stripes, those colours giving the greatest contrasts. Where there is a large volume of night traffic the triangles must be provided with red and yellow reflectors, or alternatively a number of posts indicating distances, or palings in the same colours, to left and right of the road, arranged to attract the attention of drivers. Gates are to be painted in the same colours and provided with red lights or reflectors, or a floodlight that will light up the gate when not fully open. Gates operated from a distance must be provided with audible signals, giving road users plenty of time to get clear when they are about to be closed. All level crossings with gates must be guarded. The so-called "gate" is on the Continent often only a lifting barrier.

The St. Andrew's cross sign is to be reserved for marking level crossings without gates but with automatic signals, for which the warning approach sign is to be

the triangle, bearing the picture of a locomotive, on a post bearing the cross sign, in the immediate vicinity of the railway, both cross and post being painted in the two colours. In the immediate vicinity there must be an automatic signal, giving warning of the approach of trains, by one or more flashing red lights, indicating that road traffic must stop. The experts were asked to add lights indicating when there was no need to stop but thought they were not absolutely necessary and would prove too costly. Audible signals were also objected to, partly for the same reason and also because they might constitute a nuisance for the neighbourhood, but it was decided to retain them on the ground that, while they hardly affected motorists, they did afford protection to cyclists and pedestrians. For highways with a large volume of night motor traffic the flashing red light is to alternate with a flashing white light, or distance posts or coloured palings be adopted, or white or yellow reflectors placed on the triangular approach signals. The same regulations will apply to level crossings with neither gates nor automatic signals, except that a flashing amber-coloured light, working during the whole time the train service is in operation, is substituted for the red and white light signals. The greatest importance is attached to visibility in this case, both for train and motor drivers, making due allowance for the maximum speed of trains, so that the road driver, approaching from either side, may have time to stop before a crossing should a train be in sight, and one who has reached the crossing when a train appears has time to get clear. It was agreed that any arbitrary increase of signals would only lead to dangerous confusion. The essential guarantee of safety was perfect visibility.

British Conditions

It may be noted that these proposals were not wholly acceptable to the competent quarters of the United Kingdom. In the draft convention a red light is an unconditional order to road drivers to stop, but it does not always have such a categorical significance in England, where it is the practice to equip warning signals (which are not stop signals) with red reflectors, red being most clearly visible in fog. The difficulty of reconciling this objection with the fact that red on the Continent almost universally means "stop" led to the British view being taken note of but not adopted, but in the recommendations proposed for insertion in the Final Act of the Conference additional safety measures are suggested for foggy weather. Finally it is recommended to remedy the situation with regard to side-gates at level crossings, used at will by pedestrians. Common in France, and some other countries, they have been the cause of a large number of accidents.

There are certain gaps in the proposals, notably concerning the distance between warning signals and crossings, yet to be filled up and left to each country to solve in the light of experience. The system, while undoubtedly an improvement, from the standpoint of Continental road traffic, on the existing confusion of signs, is likely to prove costly and Governments may well hesitate to ratify a convention that puts a fresh burden on the railway systems, not all everywhere State-owned, or on road users who, in most Continental countries, are fairly heavily taxed already.

The subject was discussed at the 10th International Railway Congress, held in London in 1925.

The G.W.R. Road Transport Department in 1938

Two special-type vehicles have been introduced experimentally, one using producer gas and the other propelled by a centrally-placed air-cooled engine

THE uncertainty of the past year was reflected in the general cartage activities of the G.W.R. Road Transport Department. In view of the trade position it was decided not to buy additional equipment, but a vote was obtained for 74 cartage vehicles and 14 trailers to replace discarded stock, and 29 vehicles purchased as additional stock on last year's vote were used as renewals. A further expenditure of £2,500 was authorised for the conversion of solid-tyred trailers to pneumatic tyres, rendered necessary by new regulations. The authorised stock on December 31 last was therefore 2,393 Great Western vehicles, 23 jointly-owned vehicles, 1,865 Great Western trailers, and 12 jointly-owned trailers. The company's horse stud at the close of the year was 1,500.

Special-Type Vehicles

The recent crisis brought again to the front the question of alternative fuels for the internal-combustion engine, and one substitute which has received attention is producer gas. The G.W.R. recently bought a Latil tractor fitted with producer gas apparatus. The machine employs a standard petrol engine modified for working on the special fuel produced. The essentials of this apparatus are a small furnace, together with a storage tank and cleansing device, known as "scrubbers." The basis of producer gas power is the well-known practice of converting carbon through various stages into carbon-monoxide. This gas is combustible in an engine when mixed with further oxygen made by adding steam to the primary air, resulting in the formation of hydrogen



Latil tractor fitted with producer-gas apparatus started by anthracite coal

and more carbon monoxide. The gas is used in the place of petrol for driving the vehicle. In order to start the plant, it is necessary to fill the furnace with a suitable fuel. Anthracite coal is being used for this purpose and is found to serve excellently. The fire is started by means of a small torch, and suction is produced by a hand-blower until the engine begins to function, when the necessary suction is created by the stroke of the pistons.

An experiment is being carried out with a most interesting type of vehicle, produced experimentally at the suggestion of the railway companies, which should prove very successful for general delivery work. This is a 30-

cwt. lorry propelled by a 10-h.p. twin-cylinder air-cooled engine situated beneath the body, but in such a way as to give ample clearance for all purposes. Easy access for maintenance purposes has also been achieved. The fitting of the engine in this manner enables the cab to be so placed as to give free entrance and exit on both sides for the driver, thus facilitating his work when delivering small parcels and general goods traffic. The unit has so far proved successful, and the experiment continues.

The experimental pneumatic-tyred horse-drawn vehicle placed in service at Oxford has been augmented by five others.

Special Contract Work

Many important special cartage contracts have been



New type of 30-cwt. Scammell lorry with air-cooled engine situated beneath the body. A feature of the design is that the driver has free entrance and exit on both sides of the cab

undertaken in the course of the year, including some in connection with the Government re-armament scheme. The delivery conditions in some of these contracts has involved placing large petrol tanks on prepared foundations both on level ground and in pits up to 16 ft. in depth. These tanks vary in length up to 32 ft. and are 7 ft. to 9 ft. 6 in. in diameter. They have to be positioned to within one-eighth of an inch. The company has successfully carried out the delivery and positioning of 87 tanks during the past year.

Carting Agency Absorbed

As the result of the death of Colonel G. R. Powell (Managing Director of W. P. Powell & Co.), in 1937, the G.W.R. last year took over the cartage work formerly performed by that firm in South Wales. The transfer was completed in July, 1938, and 23 motors, 36 horses, 108 lorries, together with buildings, equipment, plant, and machinery were absorbed. The work is being carried out satisfactorily by the members of Powell & Company's staff, who, in the main, were taken over by the G.W.R. under railway conditions. A substantial economy is being realised under the revised arrangements.

Legislation

Special regulations covering the conveyance of sand and ballast came into force in July last. Such traffic may now be conveyed on the road only by actual weight or in vehicles which are calibrated to show the volume. Special road conveyance notes must also be carried. Certain other regulations became operative on October 1, 1938, notably those requiring maximum tyre sizes to be in-

dicated on heavy motorcars, certain alterations in the legal lettering exhibited on vehicles and trailers, and the fitting of mudwings on trailers, other than timber carriages. The G.W.R. carrier licences came up for renewal at the latter end of the year; up to the time of writing, the applications have been successful in six traffic areas, leaving those in one area still to be decided.

Passenger Services

The company's relationship with its associated road companies has continued on the basis of the policy laid down in the various agreements, and there have been some notable extensions of arrangements for the interavailability of tickets, a form of co-ordination which statistical returns prove is increasing in popularity with the public. During the year, no fewer than 58,000 Great Western passengers made the return journey by bus, whilst 62,000 omnibus passenger returned by train. This arrangement has also been adopted in one or two cases where competition exists between road and rail, with the result that by making the tickets interavailable, the facilities offered by both forms of transport are made available to the public to the advantage of all concerned. The possibility of some more effective co-ordination between the associated bus companies and the G.W.R. for dealing with parcels traffic is being explored in conjunction with the L.M.S.R. and the Crosville Motor Services Limited. The idea is for the railway companies to use the bus services to their fullest extent for the delivery of parcels traffic in outlying districts from stations connecting with the bus services, and for the bus company to use the railway companies' cartage equipment for the delivery of road-borne parcels in towns where this is available.

Publications Received

The Public Corporation in Great Britain. By Lincoln Gordon. London: Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C.4. 8½ in. × 5½ in. × 1½ in. 351 pp. Price 16s. net.—One form of organisation which is popular abroad but is almost unknown in Great Britain is the joint stock company, incorporated in the ordinary manner, of which all the voting shares are owned by the State or local authority. While formally more independent than the public corporation, its independence is in practice less secure, as the State representative may at any time use his voting power to dominate the undertaking for political ends. To meet this difficulty, a typically-British type of organisation has been evolved, namely, the public corporation. This is a body incorporated by a special Act of Parliament usually with monopolistic powers and with a measure of public responsibility, but at the same time preserving administrative autonomy. The modern public corporation in its post-war form is exemplified by the British Broadcasting Corporation, the Central Electricity Board, and the London Passenger Transport Board, but the idea is to some extent a development of the far older local port trust.

This book is an analysis of the origins, structures, and problems of the chief semi-independent public corporations in Great Britain. An historical introduction outlines the evolution of the public corporation and this is followed by studies of the four leading examples, namely, the Port of London Authority, the Central Electricity Board, the British Broadcasting Corporation, and the London Passenger Transport Board. The treatment covers political, administrative, and financial features peculiar to the respective examples, and attempts to evaluate the results so far achieved. A concluding chapter discusses problems common to all public corporations, and outlines the considerations which, in the author's opinion, must be taken into account, if this relatively novel form of industrial organisation is to be extended into further areas of British industrial life.

The chapter of principal interest to our readers is naturally that devoted to the London Passenger Transport Board and

this occupies 71 pages. On the whole, it is a well documented and comprehensive survey of the historical background of London transport, and explains the circumstances in which the Board was established and the apparent reasons for the form it took. The constitution and powers of the London Passenger Transport Board are adequately outlined, and considerable attention is paid to the principle of complete financial autonomy which lies at the heart of the board's structure. This section is of special interest at the present time in view of the failure of the board to achieve the operating results envisaged at the time of its formation. The author sees a strong case for Government support of the L.P.T.B. as in his view the board's difficulties are fundamentally due to excessive compensation compulsorily paid for its undertaking. The author is not without bias in his method of presentation, and reveals certain marked political tendencies, but his work is nevertheless a valuable study of an interesting phase in industrial organisation.

Perth Trolleybuses

The Western Australian Government Tramways, which operate in the metropolitan area in and around Perth, are controlled by the Commissioner of Railways. In 1933 an existing tramway route between Perth and East Perth, which had reached the stage where heavy expenditure on relaying was necessary if its operation was to be continued, was converted into a trolleybus route, and the service maintained with three buses. The route is from East Perth, through the city, to West Leederville, a suburb on the western side. In March, 1936, the Government announced its intention to provide trolleybuses on some of the routes then served by trams, the transition to take place first on the longer routes such as Claremont. The tender of Leyland Motors Limited was accepted for one complete bus and for thirteen chassis for which the bodies were to be built locally. Delays in manufacture of the chassis resulted from re-armament work in England, but an extension to Wembley from West Leederville was opened in February last, and the Claremont route was opened on June 12.

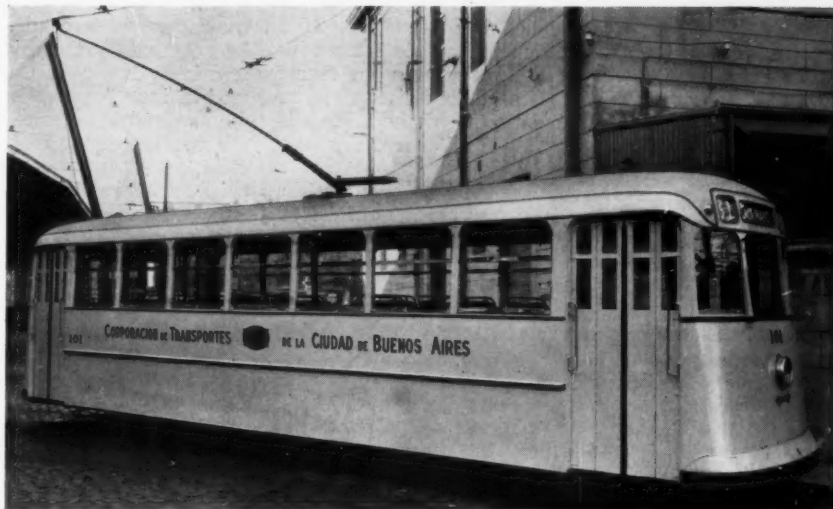
New Tramcar for Buenos Aires Transport

By MAURICE ROCHET, Rolling Stock Superintendent, Buenos Aires Transport Corporation

SHORTLY after its constitution in June last, the City of Buenos Aires Transport Corporation, formed by the amalgamation of all the public transport concerns in the city, placed in service a new tramcar differing entirely from previous models and embodying the latest improvements in tramcar construction. The car has a seating capacity, within the maximum length of 10·4 m. (34 ft.) allowed by municipal regulations, for 40 passengers, distributed in 16 transverse reversible seats on each side of a central aisle and four longitudinal corner seats arranged to facilitate the movement of passengers. The new car has two control platforms, which past experience has proved to be a more suitable arrangement for Buenos Aires than the single-control car.

The car attracts attention by the simplicity and the harmony of its streamlined body. The windscreens are inclined, to avoid the troublesome reflections from the interior of the car which occur in badly lighted districts.

The new car, constructed by the Compañía Argentina de Talleres Industriales, Transportes y Anexos, has leather-covered Pullman type seating, well sprung and with slightly concave backs. Lighting is by 12 lights in the interior of the car, including the platforms, encased in opaque globes. Electric bell-pushes are provided on every upright within easy reach of passengers. Chromium



New type of Buenos Aires tramcar

plating has been used extensively, seat handles, grab handles, window and windscreen frames, window guards, driver's portable seat, headlights, lighting, and globe frames all being so treated. Rubber cushioning has been placed between metal parts, such as seat frames, to reduce noise, and all the windows slide in felt grooves. The body panelling is entirely of oak, and the skeleton framework of hard non-decomposing timber produced in the country.

The car has lateral doors operated by the crew. Safety partitions, without doors, separate the platforms



View towards control platform



General interior view

from the car interior, the body and platforms being on the same floor level. The body construction is semi-metallic, the woodwork being erected on a metal frame. Outside fittings, the roof, and window frames are also of metal.

The restriction on the length of the car dictated the choice of a two-axle truck, which is of the Brill 21-E type, but with the distance between the axle centres increased to 3 m.; this modification, ensuring a stable vehicle, was made possible by the gradual disappearance of short-radius curves. The diameter of the wheels is 31 in. Rubber blocks have been placed between the body and the chassis to minimise running noise.

All the electrical equipment has been supplied by the General Electric Co. Ltd. The motors are the G.E. 1198 D1 type, designed for 250-300 volts and coupled permanently in series on the line voltage of 550 volts. The weight of each motor, including the set of gears, is 660 kilo., but in spite of the reduced weight and volume its full rating is 55 h.p. and its continuous operating rating is 48 h.p. at 300 volts, which is the practice followed in North America for this type of installation. In accordance with modern practice the motors are wholly suspended transversally from the body so that the maximum weight is taken up by the springs, thereby securing very

smooth running with less damage to the track and increased comfort for the passengers. Power transmission is by a set of cardan shafts and helical gears, ensuring silent operation. Armature and gear shafts run on roller bearings.

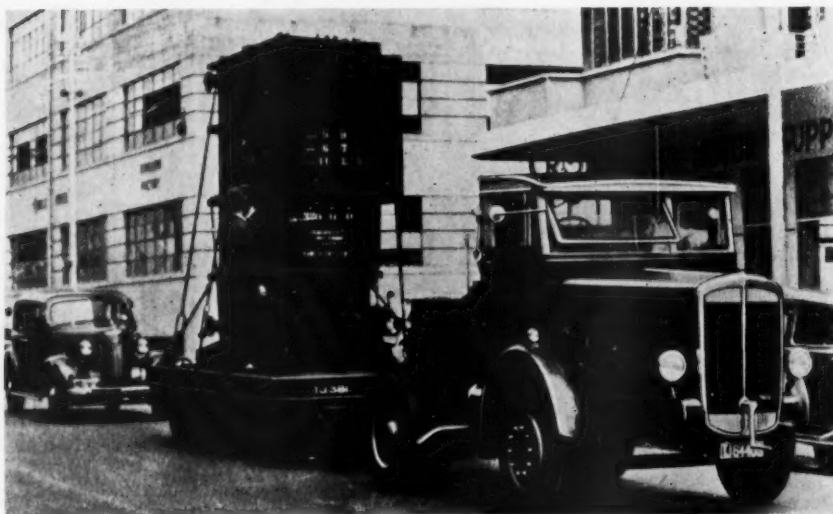
Only one SRA type controller is required and this, like the motor, is suspended from the body chassis and can be operated by the driver from either platform. Operation is by two pedals, one for acceleration and the other for braking. Acceleration and slowing up are accomplished automatically, the rate in each case being governed by the position of the corresponding pedal. The last of the eight power positions of the controller shunts the field coils to weaken the magnetic field and increases speed. Any pressure on the brake pedal cuts off the current irrespective of the position of the power pedal, and operates the rheostatic braking system. There is also mechanical braking through drums on the motor armature shafts, operated by a hand lever.

The controller incorporates automatic protection against overload, which limits the motor current to a normal value and avoids excessive torque in the application of the brake. In the event of a short circuit or overload, the current in the motor circuit is cut off by means of the main maximum automatic switch

Thornycroft Trusty Tractors in South Africa



Left: Trusty class 3 ft. 8 in. wheelbase Thornycroft tractor chassis in the service of the South African Railways hauling a 20-ton shearing machine. Ballast is being carried in a temporary body mounted over the driving axle of the tractor vehicle so as to be available to overcome wheel spin



Right: Similar tractor of the South African Railways hauling a multi-wheeled trailer carrying a 27-ton Pirelli transformer from the docks en route to the Municipal power station in Johannesburg

Santa Fe Co-ordinated Road-Rail Services

ON July 1 the Atchison, Topeka & Santa Fe Railroad inaugurated a remarkable co-ordinated road and rail service between San Francisco and Los Angeles. The reason for this move is that the Santa Fe railway route between Oakland (San Francisco) and Los Angeles is very round-about south of Bakersfield, involving a long detour via Barstow and San Bernardino, with the result that the distance from Bakersfield to Los Angeles by road is less than half that by the Santa Fe line. In order to compete with the Southern Pacific Railroad service, therefore, it was decided to run high-speed air-conditioned buses over this road, connecting with the two Golden Gate diesel-electric streamlined expresses, each of which makes a round trip over the Oakland—Bakersfield section daily. Other buses connect with two steam trains in each direction daily. A bus service is also run from San Francisco city to Oakland over the Bay bridge, to connect with the Los Angeles trains.

The operating subsidiary is the Santa Fe Transportation Company, which is also running through and local bus services between San Francisco and Los Angeles, and onwards to San Diego, Needles, and on other routes in California. The combined through service between San Francisco and Los Angeles takes 9½ hr. or slightly under,

at an average speed of 45.5 m.p.h. The streamlined trains cover the 313 miles between Bakersfield and Oakland, with four intermediate stops, in 5 hr. 50 min., at 53.6 m.p.h., and the buses make the 116-mile run between Bakersfield and Los Angeles with ten intermediate stops in 3 hr. 50 min. at an average speed of 30.1 m.p.h.

Air-Conditioned Buses Described

The buses are 36-passenger streamlined parlour coaches, air-conditioned and dustproof, and with the 180-h.p. horizontal Hall-Scott power unit under the floor. The body and chassis are built as a single unit in aluminium-alloy and alloy-steel. Bendix-Westinghouse air brakes are fitted, the air-plant also operating the pneumatic doors. The seats are wide individual chairs adjustable to several positions. The air-conditioning equipment de-humidifies and circulates the air, giving a complete change of air every four minutes. Ten cubic-feet of fresh air per passenger per minute is drawn into the coach by fans in the roof above the driver. This air is mixed with 1,100 cu. ft. per min. of re-circulated air, cooled as required, and circulated throughout the coach. We are indebted to our American contemporary the *Railway Age* for this interesting information.



Shipment of 38 large motorcoaches for service in Uganda is being carried out by the British India Steam Navigation Company. They are being built at Hendon by Duple Bodies & Motors Limited, on chassis by Albion Motors Limited

Overseas Notes

New Zealand Railways Absorbing Road Services

The Railway Department's programme for taking over the long-distance road transport services in the Auckland district has now been completed. The Government now owns and operates all the long services in the Auckland area which are listed as suitable to work in conjunction with the railways. The list includes 10 former separate services and 54 vehicles. Eighty employees are engaged, all of whom are now working for the Railway Department in the road service section. This development in the activities of the Railway Department has resulted from the recommendations of the commission, presided over by Sir Francis Frazer, which sat in Auckland early in 1937. Since the department assumed control, the traffic on all routes has been heavy.

Traffic Increases Forecast

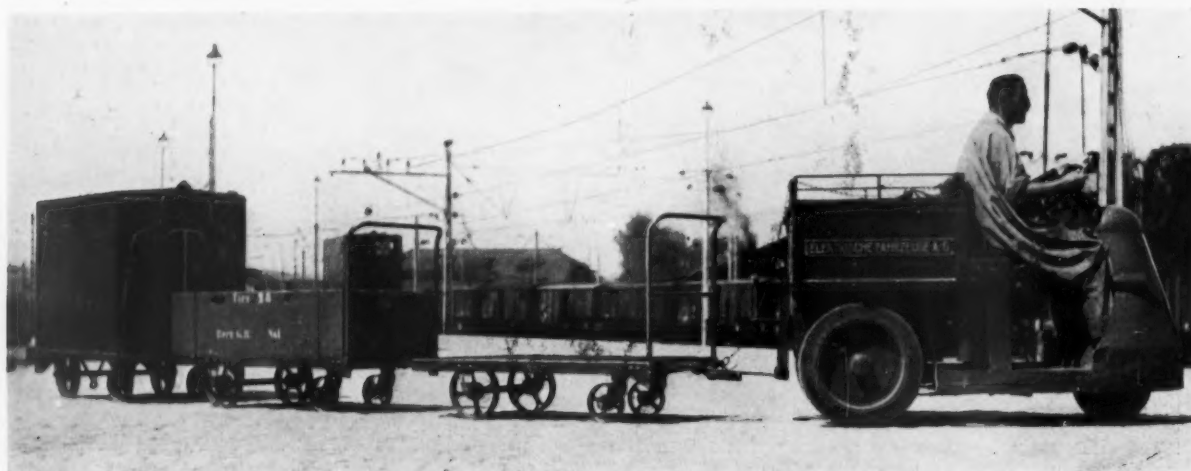
The contribution made by the railways to the development and general welfare of New Zealand was recently emphasised by the Prime Minister, Mr. M. J. Savage, and, he said, the railway service was one of the few services that had not increased its charges, despite improvements all along the line; this could obviously not continue indefinitely. It is understood that a 10 per cent. increase in fares and freights is likely to be made almost at once.

Road Transport in Portugal

Improvements in road construction in Portugal have resulted in the rapid development of motor transport, says the Report on Economic and Commercial Conditions in Portugal, issued by the Department of Overseas Trade (H.M. Stationery Office, 1s. 6d. net). Special problems have arisen, affecting principally the railway companies. In 1936 there were 360 concessionaires, operating 719 services, with 1,387 vehicles, over 6,400 miles. The tendency is towards a reduction in the number of independent operators and the concentration of services in more powerful hands. The number of passengers transported in 1936 was 10,969,301, an increase of 15 per cent. over the previous year. No statistics are available regarding the transport of goods. On December 31, 1937, there were 33,208 light cars, 10,169 lorries, and 3,858 motorcycles, in use in the country. The competition of road transport has become so serious that in July, 1938, the Government temporarily suspended the issue of new licences for goods services, pending a solution of the problem facing the railway companies.

Containers on the Swiss Federal Railways

Brief reference was made on page 321 of our August 19 issue to the introduction by the Swiss Federal Railways of small containers of 1- and 2-cu. m. capacity. These may be used for international services, and are suitable for fruit, food products, hardware, and so forth. The tare is 320 and 440 kg. respectively for the two sizes. The containers are of steel, lined with Pavatex, and provided with suitable ventilation gratings. For loading, one of the side panels can be removed in three sections after the cover has been lifted back. The wheels are rubber-tyred, with roller-bearings, two of them pivoting freely, whereas the others are on a fixed axle. For haulage by station tractors, standard type couplings are provided, as well as a shaft at the front end for drawing the container by hand. A handle at the same end, on being lowered, depresses two feet, which effectively anchor the container at the point selected for loading or unloading. The dimensions of these containers enable them to be loaded into covered goods wagons; 150 have been introduced so far.



Small containers in use on the Swiss Federal Railways. The top view shows the movable side panel, and cover lifted back to facilitate loading

RAILWAY NEWS SECTION

PERSONAL

The Railway Benevolent Institution announces that the Rt. Hon. Leslie Burgin, P.C., M.P., Minister of Transport, has accepted the presidency of the institution for the year 1939, and that Mr. Gilbert S. Szlumper, C.B.E., has agreed to act as Chairman of the board of management for this year. The anniversary festival of the institution is to be held at the Connaught Rooms, London, on Thursday, March 23, 1939.

Mr. E. G. Dalton, formerly with the Sentinel Waggon Works Limited, and Rootes Limited, has taken up an appointment with John I. Thornycroft & Co. Ltd. in the Metropolitan Traffic Area.

Mr. R. C. Giggins has recently been appointed to the Government & Railways Department of the General Electric Co. Ltd. In his previous appointment as General Manager of the company's organisation in Malaya, Mr. Giggins interested himself in broadcasting, and was a pioneer (later becoming Chairman) of the Malayan Broadcasting Corporation.

From *The London Gazette* of December 23: Regular Army Supplementary Reserve of Officers, Royal Engineers, Transportation: Godfred Rigby to be Lieutenant (December 24); W. M. R. Taylor to be Second Lieutenant (December 24).

Mr. J. M. R. Fairbairn, Chief Engineer, Canadian Pacific Railway, retired under the pension regulations on December 31, after serving the company since 1900. He is succeeded by John E. Armstrong, at present Assistant Chief Engineer. Mr. F. W. Alexander, Engineer, Maintenance of Way, Winnipeg, is succeeding Mr. Armstrong as Assistant Chief Engineer.

Mr. W. T. John retired on December 31 from the post of Assistant District Goods Manager, Swansea, Great Western Railway. At a complimentary luncheon on December 30, presided over by Mr. W. Davis, the District Goods Manager, Mr. John was presented with a writing desk and an illuminated address, together with a silver tea service for Mrs. John.

Mr. J. L. Beven, senior Vice-President, has been elected to succeed Mr. L. A. Downs as President of the Illinois Central System.

We regret to record the sudden death at Swords, Co. Dublin, on January 6, of Mr. William Burton Carson, Chairman of the Great Northern Railway (Ireland). Mr. Carson had been a Director of the railway for nearly 30 years, succeeding his father on the board of the company. In 1926 he was elected Deputy Chairman, and while in that office played an important part in the settlement of the Irish



Lafayette

Dublin

The late Mr. W. B. Carson

Chairman, Great Northern Railway (Ireland), 1935-39

railway strike of 1933. Mr. Carson was elected Chairman of the company in 1935, on the death of Sir Lingard Goulding. In recent months his opinion was frequently sought in connection with the Government investigations of transport problems in Eire and Northern Ireland. Mr. Carson was also a Director of the County Donegal Railways Joint Committee, the Dundalk, Newry & Greenore Railway Company, the Strabane & Letterkenny Railway Company, and of the Royal Bank of Ireland.

Mr. Koti Huziwara has been appointed Engineer Representative at the London office of the Japanese Ministry of Railways.

Engineer Arturo Noni, Director-General of Railways in the Argentine Ministry of Public Works, has been appointed a delegate to the International Railway Congress in place of his predecessor, Engineer Manuel Garcia Torre.

EIRE TRANSPORT INQUIRY COMMITTEE

The personnel of the tribunal appointed by the Minister for Industry and Commerce to inquire into the transport position in Eire has been announced. The members are:—

Mr. Joseph Ingram, Chairman; Mr. J. P. Beddy, Dr. Henry Kennedy, Mr. J. P. O'Brien, and Mr. D. O'Hegarty (Members); and Mr. John O'Brien, Secretary.

Mr. Joseph Ingram is a former Secretary of the Irish Railway Clearing House, and left that position to become Director of Transport in the Ministry of Industry and Commerce. Mr. Beddy is Secretary of the Industrial Credit Company, and Dr. Kennedy is General Manager of the Irish Agricultural Organisation Society. Mr. J. P. O'Brien, General Manager of the Irish Tourist Association, is also a member of the Prices Commission. Mr. O'Hegarty is a Commissioner of Public Works and a former Secretary to the Executive Council. The Secretary, Mr. John O'Brien, is in the Transport Branch of the Ministry of Industry and Commerce. He was for a time Registrar of the Irish Railway Tribunal.

Mr. R. P. Davis, whose appointment as Assistant District Goods Manager, Swansea, G.W.R., was recorded in our issue of December 2, entered the service of the company in 1911 in the Divisional Superintendent's Office, Plymouth, afterwards being transferred to the Goods Department in the same city. From 1915 to 1919 he saw service with the Colours and after demobilisation resumed duty at Plymouth Goods. In 1922 Mr. Davis was moved to the Chief Goods Manager's Office (Rates Department), and in 1923 was selected for a year's course of training in connection with the company's training of salaried staff scheme, at the conclusion of which Mr. Davis was appointed to the Staff Department of the Chief Goods Manager's Office and was subsequently associated with work arising from the powers to operate road services conferred upon the railways by the 1928

Act; also in connection with schemes for the re-organisation of tranship working which the company carried into effect during 1930-1932. In 1934 Mr. Davis was appointed to the position which he now vacates, namely, Outdoor Representative (Operating) to the Chief Goods Manager, with which has been incorporated matters relating to inter-company procedure and the development and operation of co-ordination schemes which have been instituted at various points on the system under the ægis of the L.M.S.R. and G.W.R.; also L.M.S.R., L.N.E.R., and G.W.R. pooling, and G.W.R. and Southern Railway closer working arrangements.

Mr. J. E. T. Stanbra, whose appointment to succeed Mr. E. E. Painter as Secretary of the Railway Clearing House was recorded in our issue of December 30, is an Oxfordshire man, born near Blenheim in 1886. He began business in 1901 at the Railway Clearing House, and was originally appointed to duties in the Passenger Accounts Department, but in 1902 was transferred to the Secretarial Department. In this department he gained experience in matters appertaining to passenger train travel and conveyance of merchandise by the performance of secretarial duties at numerous conferences of the railway companies. The appointment of the Rates Advisory Committee soon after the war to investigate the desirability of revising railway rates and charges and re-modelling the Railway Classification, necessitated the setting up of a large number of com-



[Photo.]

Mr. J. E. T. Stanbra

Appointed Secretary, Railway Clearing House, in succession to Mr. E. E. Painter, who is retiring on March 31

mittees by the railway companies, and Mr. Stanbra was deputed to deal with these matters on behalf of the Railway Clearing House, involving his attendance at all committee meetings and sittings of the Rates Advisory Committee as well as supervising the preparation

of a vast amount of data. In 1923 Mr. Stanbra was transferred to the General Manager's office at Euston, L.M.S.R., to act as Personal Assistant to Mr. John Pike and specialise on matters arising out of the passing of the Railways Act of 1921. This involved frequently attending the Rates Tribunal proceedings and the preparation of statistical and other information for use of the railway companies' witnesses in connection with the preparation of the Standard Charges which came into operation on January 1, 1928. In July, 1928, Mr. Stanbra was appointed Assistant to the Chief Goods Manager, L.M.S.R., for Rates Tribunal matters, necessitating attendance at the various sittings of the tribunal. He frequently appeared before that body on behalf of the railway companies, often giving evidence on rates and charges matters generally, and since 1934 in respect of agreed charges in particular.

Mr. J. Keyden, whose appointment as Assistant to the Operating Manager (Motive Power), Northern Division, Glasgow, L.M.S.R., was recorded in our issue of December 9, was educated at Stirling High School and Glasgow Technical College. In 1893 he joined the former Caledonian Railway as an apprentice engineer at Stirling, and completed his apprenticeship at St. Rollox works in 1898. Mr. Keyden then had experience in several running sheds preparatory to his appointments as Assistant Foreman at Greenock in 1901, and at Carstairs in 1902. In

**Mr. R. P. Davis**

Appointed Assistant District Goods Manager, Swansea, G.W.R.



[Photo.]

Mr. J. Keyden

Appointed Assistant to Operating Manager (Motive Power), Northern Division, L.M.S.R.



[Lafayette]

Mr. J. W. Oddy

Assistant to Passenger Manager (Southern Area), L.N.E.R., 1926-39

1907 he went to St. Rollox as Head Office Running Inspector, and in 1909 to Perth as District Locomotive Superintendent. He was appointed to the corresponding post at Motherwell in 1919, and, after grouping, at Polmadie, L.M.S.R., in 1924. Since 1935 Mr. Keyden has been Assistant to Divisional Superintendent of Motive Power for Scotland, and will remain in that position until taking up his new appointment on February 1.

Mr. J. W. Oddy, Assistant to the Passenger Manager (Southern Area), L.N.E.R., whose forthcoming retirement on January 31 was announced in our issue of December 9, entered the service of the Great Northern Railway in 1892. After gaining experience at various stations in the West Riding of Yorkshire and in the District Superintendent's office at Leeds, he was transferred in 1901 to the Superintendent's office at King's Cross. In 1904 he joined the Chief Passenger Agent's staff, and whilst in that department was awarded the "Rosebery" silver and gold medals for papers on subjects relating to passenger train travel. In 1912 Mr. Oddy became Chief of the Excursion Department, which post he held until the outbreak of war. During the war period he had charge of the railway side of military arrangements for coast defences, evacuation of danger zones, air raid warnings, and other matters. On the conclusion of the war he was appointed Advertising Representative (Railway & Commercial) for the Great Northern Railway. Upon the amalgamation of the railways in 1923, Mr. Oddy was selected to take charge of the Traffic and Works Section in the newly formed Passenger Manager's Department at Liverpool Street, and three years later was appointed Assistant to the Passenger Manager, in which position he has been associated with practically all phases of the company's activities for the development of passenger train traffic, including the various electrification schemes which will be brought into operation in the near future.

CANADIAN NATIONAL APPOINTMENTS

The following appointments, effective from January 1, are announced from the Montreal headquarters of the Canadian National Railways:—

Mr. F. L. C. Bond, General Manager, Central Region, to be Vice-President and General Manager, Central Region, with headquarters at Toronto, *vice* Mr. W. A. Kingsland, retired.

Mr. P. D. Fitzpatrick, Chief Engineer, to be General Manager, Grand Trunk Western Lines, at Detroit, Mich., *vice* Mr. C. G. Bowker, Vice-President and General Manager, retired.

Mr. S. W. Fairweather, Director, Bureau of Economics, to be Chief of Research and Development over the Canadian National system, being empowered to initiate studies of general

and local problems and to conduct, in conjunction and co-operation with all departments, research work bearing upon all activities of the system.

Mr. J. S. McGowan is appointed Director of Colonisation and Agriculture, *vice* Mr. W. J. Black, retired.

INSTITUTION OF LOCOMOTIVE ENGINEERS

The following elections have been announced by the institution:—

Member

Mr. P. R. Angus, Locomotive Superintendent, New Zealand Government Railways.

Associate Members

Mr. H. W. Mace, Chief Running Inspector, Nigerian Government Railway.

Mr. J. Vittone, Chief of Technical Office (C.M.E. Department), Buenos Aires Provincial Railway.

Associates

Mr. A. S. Davidson, Secretary and Manager, The Federated Engineers Limited.

Mr. E. W. Greaves, Assistant to London Manager, English Steel Corporation Limited.

Mr. A. J. D. Kitson, Engineer and Departmental Manager, W. M. Still & Sons Ltd.

L.N.E.R. APPOINTMENTS

The L.N.E.R. announces that the following appointments have been made:—

Mr. B. X. Jessop, Assistant District Goods Manager, Leeds, to be District Passenger Manager, Leeds, in succession to Mr. M. A. Cameron, who has recently been appointed Assistant to the Passenger Manager, Southern Area.

Mr. W. L. Kelly, Passenger Manager's Office, York, to be Assistant District Goods Manager, Hull, in succession to Mr. W. H. Waugh, who will retire from the service under the age limit on January 20.

Mr. D. Murray, Goods Agent, Hull, to be Assistant District Goods Manager, Newcastle, in succession to Mr. E. A. W. Dickson, who is engaged on special duties.

Mr. Eugen Labhardt, who, as announced in our issue of December 16, retired from the position of Manager (Kreisdirektor) of the Second Division of the Swiss Federal Railways at Lucerne on December 31, had completed 40 years of railway service. After two years with the Centralbahn, he transferred to the Gotthardbahn, remaining on its lines when that company was taken over by the Federal Railways. In 1915 he was appointed Assistant to the Chief Engineer of the former Second Division in Basle, and went to the general management in Basle in the same capacity in 1922. When the Federal Railways were reorganised into three divisions instead of five, Mr. Labhardt became Manager of the Second Division, and he has been responsible for numerous im-

portant works on its lines, such as the extension of the Muttensfeld marshalling yard at Basle, reconstruction of Chiasso and Lugano stations, and doubling of several sections of line.

Mr. J. L. Willoughby has been appointed Port Manager, Port Sudan Harbour, Sudan Government Railways.

MR. A. R. COOPER FOR AIR MINISTRY

Mr. A. R. Cooper, who retired at the end of 1937 (see our issue of December 31 of that year) from the position of Chief Engineer, London Transport, has been appointed Director of Air Ministry Factories in the department of the Director-General of Production. Mr. Cooper will exercise a general supervision on behalf of the department over national factories and extensions of manufacturers' works which are erected at the cost of public funds and are managed by the firms for the Air Ministry.

SOUTH AFRICAN STAFF CHANGES

Mr. J. Timperley, General Secretary, Sick Fund, Johannesburg, has been appointed Superintendent (Staff), Johannesburg.

Mr. Alan Arthur Stanford, ex-magistrate, Heidelberg, Transvaal, has been appointed Chief of Police and Investigation in the South African Railways & Harbours with the rank of Lieutenant-Colonel.

INDIAN RAILWAY STAFF CHANGES

On return from leave Mr. S. C. Das Gupta has been appointed to officiate as Chief Accounts Officer, E.I.R., as from November 22 last.

Mr. G. W. Browne, officiating Deputy Chief Mechanical Engineer (Power), E.I.R., has been granted 9½ months' leave as from December 21 last.

Mr. H. G. N. Read, Assistant (Road and Air Transport and General) to the Chief Commercial Manager, L.M.S.R., has been appointed Chairman of the Huddersfield Corporation and L.M.S.R. Joint Omnibus Committee for 1939, in succession to Alderman Bennie Gray, C.B.E., J.P. Mr. Read has served on the joint committee for a number of years and is the present Chairman of the Corporation and L.M.S.R. and L.N.E.R. Joint Omnibus Committee at Halifax.

We regret to record the death on December 28 of Mr. George Edward Smyth, O.B.E., who retired, shortly after the amalgamation of the Irish railways, from the position of Assistant to the General Manager of the Great Southern Railways, Kingsbridge. Mr. Smyth, who had formerly been Chief Clerk in the General Manager's Office, was subsequently Superintendent of the Line, and Traffic Manager of the Great Southern & Western Railway, prior to amalgamation. He was an honorary M.A. of Trinity College, Dublin.

The Work of the Railway Clearing House

Précis of a paper presented by Mr. E. E. Painter to the Industrial Transport Association on January 10

Under the title of "The Railway Clearing House—its origin and functions," Mr. E. E. Painter, Secretary of the Railway Clearing House, gave the Industrial Transport Association on Tuesday an interesting outline of the important, but little-known, work of that organisation. The inception of the Clearing House, he said, was the result of inconvenience caused to the public, when travelling over more than one system, of having to change and re-book, and also of the delay and damage to goods caused through constant transshipment from one system to another. This was overcome by through-bookings of fares and through-invoicing of traffic, and the accounts were dealt with and settled through the Railway Clearing House, which was established in 1842. Initially only nine railway companies were parties to the Clearing system; the number steadily increasing until, prior to the amalgamations under the Railways Act, 1921, practically all the standard-gauge railways were parties.

Work Lessened by Amalgamations

By 1921 the staff employed totalled 3,400 (including numberrakers), and since 1897 the Clearing House has been a corporate body, of which control was exercised by one delegate from every party company up to the time of amalgamation in 1922. Since that date every amalgamated company has had four delegates and the other party companies one. Since 1925, as the result of amalgamations, the amount of work of the Clearing House has necessarily lessened, and at the present time the staff numbers approximately 1,800 persons. The aggregate mileage of the companies party to the clearing system is approximately 23,000 miles, and during 1937 the Clearing House staff dealt with over £45,000,000 of receipts, and in addition a considerable volume of work associated with the pooling arrangements of the companies adopted in pursuance of Section 19 of the Railways Act, 1921. In 1937 the numberrakers recorded nearly 11,000,000 entries in respect of stock exchanged at junctions between the companies.

The method of dealing with the division of receipts in respect of merchandise traffic passing over two or more companies' systems by goods train was explained by Mr. Painter, who showed how, by working to regulations which the experience of years had shown to be desirable, the abstract particulars furnished by the forwarding and receiving stations were reconciled preparatory to dividing up the receipts due to the respective companies over whose systems the transit occurred. The method of dividing re-

ceipts in respect of fares under the various types, such as monthly, tourist, and excursion bookings, was explained, and owing to the fact that the booking company has the "cash" it is necessary only to apportion the gross receipts between the companies interested and arrange payment to the non-booking companies. An explanation was also given of the use of tickets and serial numbers for checking purposes. As regards merchandise by passenger train, this is dealt with in two parts:—

(i) General parcels, traffic consists mainly of relatively small parcels and, by the use of adhesive value stamps representing conveyance charges fixed to the package, invoicing is avoided. For settlement of the payments between the companies, the total receipts and numbers of parcels were ascertained for certain years and in conjunction with the numbers of parcels carried in each current month, form the basis for division.

(ii) Other merchandise by passenger train (generally referred to as miscellaneous) which in the main relates to packages exceeding 2 cwt., livestock, perishables, and several other goods which usually pass in such quantities as necessitates the use of a special vehicle. Here the traffic is waybilled and the division of receipts broadly dealt with in a similar way to merchandise by goods train.

Variety of Functions

The next matters of interest related to the proportion of payment due to the railway companies in respect of parcels post traffic handed by the Postmaster General to the railway companies for conveyance; the bulk travel facilities for business firms; the settling of accounts in respect of passenger travel embraced under the pooling arrangements set up under the London Passenger Transport Act, 1933, which covers omnibus and train receipts as well as rail; and also the ascertainment of the balances due to the respective companies under the pooling arrangements which have been entered into by the main-line companies. Mention was also made of the computation of returns to the Minister of Transport in respect of the tonnage and receipts of the various classes of merchandise for selected periods and the use of special machines for these purposes. Reference was then made to the functions of the Secretarial Department of the Clearing House and the principal features were explained, so far as the activities of this department are concerned, which are divided under two broad heads, namely, mileage, and general.

So far as the mileage is concerned,

the function of this section is to arrange the recompense to the owning company for the use of its stock by another company, thereby ensuring the speedy return of stock, whether this be for the purpose of conveyance of passengers or merchandise, to the owners. The work in this section is not now so great as formerly owing to the introduction of "common user," but under this system it is necessary to arrange appropriate recompense in present-day values to the forwarding company for the use of every loaded wagon and sheet which passes on the lines of another company. Common user does not apply to coaching stock and certain other vehicles such as specially constructed wagons for the conveyance of merchandise by goods train. To give effect to this, returns have to be compiled of the wagons exchanged at the junctions and the station returns of arrival and departure of foreign stock, the Clearing House having numberrakers at a large number of exchange junctions throughout the country for the purpose of taking the needful records of wagons exchanged at such places. These exchange returns also provide in the case of coaching stock and non-common-user vehicles a ready ascertainment as to whether vehicles passing off the parent company's lines are returned within the appropriate free time or whether they have been sent in a wrong direction and, so far as common-user stock is concerned, reliable machinery whereby every company can be assured that it has its equivalent use of stock proportionate to that which it has contributed to the pool, whether these be wagons or sheets. The extent of the work may be gauged from the fact that exchanges are recorded over 800 points and in a recent three months over 3,000,000 exchanges of goods traffic vehicles were dealt with.

Staff and Other Matters

The general section of the Secretarial Department deals with the administration of the establishment and staff matters and performs the secretarial duties for the numerous conferences of the railway officers who deal with all branches of railway work. The Clearing House provided accommodation for nearly 2,000 meetings in 1938, preparing the necessary agendas and issuing the minutes, as well as dealing with extensive correspondence which naturally arises out of such meetings and in connection with Government Departments and the public. In addition to the meetings of the railway companies, interviews are held from time to time with trade organisations and individual traders and there is hardly a trade organisation in the country or any business house of importance that at some time or other has not had some transaction with the Clearing House. Mr. Painter also referred to the work the Clearing House performs in this section in connection with the

International Union of Railways, an organisation which is operated from offices established in Paris. The various documents published by this union from time to time are usually in a foreign language and are translated by the member of the Clearing House staff who act in a secretarial capacity to the English Companies Committee responsible for this branch of railway work.

The Clearing House is also in charge of the accounting arrangements associated with the Railway Freight

Rebates Fund. A short explanation was also given of the duties of the Clearing House in respect of agreed charges, the Clearing House being responsible for the signing of the agreements, their stamping at Somerset House, applying for approval by the Railway Rates Tribunal and keeping all necessary records, together with a file of all agreements for public inspection. An explanation was also offered of the work undertaken on behalf of the companies generally in respect of a large number of documents either for

use privately by the railway companies or for the use of traders, such as the "General Classification of Goods," and the issue of railway maps and the "Hand Book of Stations." The work of the Clearing House is constantly changing, and, although in certain respects it has diminished owing to the introduction of shortened methods of accounting, mechanisation and other causes, it is expanding in other directions, the Clearing House being to a large degree the "maid of all work" of the British railways.

Road Passenger Transport in Relation to Railway Services

A précis of Colonel A. S. Redman's paper to the Institute of Transport on Monday last

In reading his paper, entitled "Passenger Transport by Road in Relation to Railway Services," before the Institute of Transport on Monday evening last, Colonel A. S. Redman, who a year ago relinquished his post as Chairman of Traffic Commissioners for the West Midland Area, gave some interesting suggestions and opinions on what he admitted to be a decidedly controversial subject.

He expressed the view that for the present fair competition between road and rail could be hoped for only through the medium of economics. By that he meant, as had already been largely accomplished in the passenger carrying industry, the adoption of fares sufficient to cover high standards of vehicles, operation, and employment. If these were on a satisfactory basis should not the supply of seats be in accordance with the natural law of public demand? If it then transpired that patronage of an essential rail service was insufficient to render it an economic proposition, it would have to be subsidised directly, possibly from revenues derived from the taxation of more popular forms of transport, instead of the present attempts at the arbitrary restriction of more economic competing services.

In spite of being fully loaded and even overcrowded at peak times, owing to slack periods the railways in rendering their essential national services provided on an average three empty seats for every one loaded. As they must continue giving a comprehensive service of passenger trains with only this 25 per cent. load-factor, it seemed likely, if the protection given by the Road Traffic Acts proved insufficient, that there would have to be some direct subsidy which would no doubt force the nationalisation of our railways, as financial backing without control was not sound business. Absence of greater progress in co-ordination of passenger services by different forms of transport was due to the practical difficulties with which the commissioners were faced in attempting to co-ordinate two forms of activity when they had con-

trol over only one. Short of dictatorial powers being exerted by a third party over rail as well as road services, further co-ordination would be slow as it must be obtained by getting the best out of competition.

The most outstanding example of the drawing together of the interests of different forms of transport in Great Britain lay in the workings of the London Passenger Transport Board which received about half its total revenues from railway services, trams, and trolley buses and the other half from omnibus and coach services. If a joint board of municipal operation was to be set up for other large centres, then the suburban railways and their revenue must be brought into the pool; thus local co-ordination of road and rail services instead of being a duty of the traffic courts would then become the responsibility of a local central executive. In other areas interavailability of tickets might be a simple preliminary step for co-operation in local services.

In all countries the aim of recent legislation had been to conserve long distance traffic to the railways. This had been stimulated largely by a desire to obviate more direct subsidising of a form of transport which was still found essential whether the lines of communication were as thick as in Belgium or as sparse as up country in South Africa or Australia. Official blessing was accordingly more likely to be bestowed on the fostering of local rather than of long distance road traffic. Consideration might, therefore, well be given to the closing of intermediate railway stations and the institution of feeder services by road as well as to the development of road services in lieu of passenger trains on branch railway lines as had already taken place in certain cases.

In addition to the question of writing off capital assets, the withdrawal of railway facilities, however, required very wide and careful consideration. From the purely traffic point of view the goods position would normally be the deciding factor. On branch lines,

if neither station traffic in truckloads nor traffic to or from private sidings was heavy, it might be worth while examining the question of removing the permanent way and converting the railway formation into a motor track in districts where existing roadways were insufficient. The railway company's own services could then be supplemented by those of public service vehicle operators and goods carriers to outlying districts passing over sections of the converted railway route on payment of tolls to the owning company as in the case of by-traders for the passage of their boats on canals. If by combination of railway and road operators' facilities at least equivalent services are given as when the track was operated as a railway, the statutory obligation to maintain facilities might be considered as discharged. Alternatively, a branch line might be retained solely for goods traffic and worked on a standard equivalent to that of a private siding, thus saving signalling and maintenance staffs and other expenses, passenger services being diverted to the roads.

Apart from the desirability of conserving long distance traffic to the railways, a modern motorway to serve the industrial parts of Great Britain would not only be very costly to construct but its proper location would, cause considerable disturbance. It had accordingly been suggested that one of the under-utilised main-line railways between London and the Midlands, Yorkshire and Lancashire, say, the Great Central Railway which was a comparatively recent addition, should be converted into a toll road. The owning company, the L.N.E.R., would still have its Great Northern and Great Eastern components for its trunk services into and out of London, and towns served by what was the Great Central Railway were within reasonable distance of other railway stations for road distribution of any residual railborne traffic found unsuitable for conveyance by motor.

If the use of the latter were limited to motor traffic with a uniform maximum speed a measure of segregation of road traffic, with consequent increase in road safety, would be achieved. At the same time the power of the modern motor vehicle could be more fully utilised.

Purchase of Cordoba Central Railway

The acquisition by the Argentine Government has now been finally approved by the Argentine Senate and has become law

After a debate lasting two days, the Argentine Senate approved the purchase by the Government of the above railway and its subsidiary concern, the Rafaela Steam Tramway Company, on December 29, by 16 votes to one. Although the Senate's ratification of the measure was more or less a foregone conclusion, the discussion was protracted by the usual lengthy and rhetorical speeches by the Socialist and Radical members, who, while approving of the acquisition of the line in principle, opposed the Bill on the grounds that the price was too high, in view of the depreciation of the line. One of the two spokesmen for the Opposition (Sr. Eguiguren) asserted that the Government was doing a very bad stroke of business for the country, while both he and his colleague, Dr. Palacios, made bitter attacks on the British-owned railways. On the other hand, Dr. Sanchez Sorondo, a Conservative Senator, who spoke as reporting member of the Finance and Public Works Committees in support of the purchase of the line, paid a tribute to the foreign capital which had built the railways and thereby transformed Argentina from a primitive and agricultural country into a modern and highly civilised nation. The Minister of Public Works (Señor Manuel R. Alvarado) replied to the objections raised by the Opposition in a well-reasoned speech, in the course of which he stated that the purchase price (£9,500,000) agreed upon covered only 45 per cent. of the capital issue in shares and obligations of the selling company, and the devaluation of materials and rolling stock had been finally fixed at a much lower figure than that estimated either by the company or the National Railway Board.

Text of the Law

The following is a translation of the text of the law as approved by the Senate :—

Article 1.—The contract entered into between the Argentine Government and the Córdoba Central Railway and the Rafaela Steam Tramway Company for the purchase of the property and assets of both undertakings is hereby approved, and the Government is authorised to take the measures necessary to complete these transactions.

Article 2.—The Government is authorised to effect the payment of the cash instalment and of the other expenses involved by compliance with the agreement, by the issue of bonds of *Crédito Argentino Interno*, or by taking the sum required, in advance, out of general revenue, and to issue bonds termed *Obligaciones Ferrocarriles del Estado*, bearing the guarantee of the Republic, in accordance with the terms of the foregoing contract.

Article 3.—The State Railways Administration shall, within 180 days of the passing of the present law, establish for the lines of the Córdoba Central Railway the tariffs ruling on the State Railways, provided that they are lower than those at present in force on the C.C.R., reckoning the combined systems of the Central North Argentine and the Córdoba Central as a single line.

Article 4.—The State Railways administration shall retain in its service all the native-born or naturalised Argentine personnel at present in the employment of the Córdoba Central Railway, whose remuneration does not exceed \$500 paper per month.

Of the £9,500,000 sterling purchase price, £700,000 is payable in cash and the balance of £8,800,000 in Argentine Government bonds bearing interest at 4 per cent. per annum and 1 per cent. amortisation. Provision is also made for the purchase of the existing materials and equipment at a price not exceeding £500,000 sterling.

History of the Negotiations

At the end of 1936, an agreement was reached between the Ministry of Public Works and the Córdoba Central Railway, *ad referendum* of Congress, under which the property of the company was to be transferred to the State Railways, which would thus obtain an outlet to the port of Buenos Aires, for the price stated above. Nothing was done by Congress, however, and the next development was a strike of the railway employees, which was only settled when the Government decided to restore the wage-cuts at its own expense. This was done in the hope that Congress would pass the Purchase Bill before the end of the 1937 parliamentary session, but as this was not the case, the cuts were again applied, and agitation by the railway personnel was resumed. It was then that, in order to avoid further delay, negotiations were opened for the lease of the line until such time as Congress gave its decision.

The Government offered to take over the line on a one-year lease, but the company objected to this period as being inconveniently short, and it was eventually agreed to fix the duration of the lease at four years, the contract to be cancelled if, before the end of that period, Congress ratified the purchase of the line.

The railway has been operated by the Government since the beginning of 1938, and has been modernised by the introduction of diesel railcars on the suburban service, in addition to which heavy sums have been spent on repairs. The lease contract provided that the Government would pay, during its duration, the sum of £380,000 per annum to the company, representing 4 per cent. of the purchase price. The Bill was finally approved by the Chamber of Deputies by 72 votes to 33 in August last.

Directors' Statement

The directors have now issued the following statement :—

The purchase consideration of £9,500,000 is payable as to £8,800,000 (nominal) in Argentine State Railways 4 per cent. sterling bonds and as to £700,000 in cash plus a sum in respect of stores on hand.

General meetings of the holders of the three classes of the company's stocks to consider and, if thought fit, to approve a scheme of arrangement for adjusting the rights of the stockholders to meet the circumstances of the sale and to ratify the sale agreement will be con-

vened at an early date. In the meantime the board would ask stockholders to bear in mind that the acceptance of the Government's offer necessarily involves substantial sacrifices.

The broad lines of the proposed scheme are as follow :—

First Debenture Stock.—Holdings to be retained with nominal value unaltered, but the unpaid balance of interest to October 1, 1938 to be waived and as from that date the rate of interest to be reduced to 3½ per cent. per annum. Redemption price to be reduced to par (power being reserved to effect purchases under the redemption price) and as compensation the holders to receive out of the purchase money a cash payment of 2½ per cent. on their holdings.

5 per cent. Income Debenture Stock and Consolidated Income Stock.—To be merged into one stock to be known as "B" debenture stock entitled to surplus net income and surplus on liquidation. The "B" debenture stock to be allocated at the rate of : £25 "B" stock for each £100 5 per cent. income debenture stock ; and £5 "B" stock for each £100 consolidated income stock.

Southern Railway D.E. Dinner, Brighton

On January 6, the Southern Divisional Engineer of the Southern Railway and his staff held their sixth annual dinner at the Old Ship Hotel, Brighton. This dinner seems to have become a rallying point of the Southern Railway engineers and the departments with whom they work—the chairman, Mr. C. V. Hill, being supported by representatives from nearly every Engineering Division of the railway, whilst the General Manager's office, Traffic, Stores, Locomotive, Electrical, and Signal and Telegraph Departments sent their quotas, together with a strong muster from the Chief Engineer's office, as well as retired members of the staff.

Mr. F. I. S. Gill, Assistant Divisional Engineer, proposed the toast of "Our Chairman," which he did in witty vein, comparing Mr. Hill's tennis skill and tactics with those displayed in his divisional duties.

Mr. C. V. Hill in response paid a warm tribute to his staff for the work carried out under the electrification scheme recently completed, and said he was gratified to notice that this year's dinner was attended by the record number of 160.

Mr. H. F. Russ, Chief Clerk, was entrusted with the toast of "The Visitors," and he spoke of the cordial feeling existing between the Southern Divisional Engineer's staff and those with whom its members came in contact; and emphasised the atmosphere of good fellowship which brought so many visitors to the annual gathering.

Mr. D. Sheppy, Locomotive Running Superintendent, Eastern Division, and Mr. H. E. Roberts, Eastern Divisional Engineer, responded on behalf of the visitors.

The Year on the Canadian National System

A review by Mr. S. J. Hungerford, Chairman and President

Railway results in 1938 reflect the general level of business activity. The first check on the gradual recovery of the Canadian National Railways earnings from the low level of 1933 began with the decline in business activity in the last months of 1937, a decline which continued throughout a great part of 1938. This was first felt and most marked on the United States lines of the company. The revenues in the last quarter of the year indicate a cessation of the downward trend, and there now appear definite indications of the trend turning upwards again. The problem of reducing expenses in the face of declining traffic was made more difficult than it otherwise would have been on account of increases in the price of fuel and other supplies, the restoration of wage rates to pre-depression levels in Canada—agreed upon early in 1937 and fully operative on April 1, 1938—and an increase in wages above pre-depression levels on United States lines. These factors, together with a programme of creating a reserve of freight cars and locomotives in the expectation of a large crop movement, limited the reduction in operating expenses. The increases in wage rates alone amounted to several millions of dollars. Notwithstanding these adverse factors, it proved possible to reduce the operating expenses of the system by approximately \$4,500,000 from the 1937 level. It is gratifying to be able to record that the steps taken to curtail expenses did not impair the efficiency of the property.

The decline in gross revenue in 1938 was upwards of \$15,000,000, and the decline in net revenue between \$10 and \$11 million, as compared with 1937. Notwithstanding the very difficult operating conditions and the supplying of essential transportation requirements to many parts of the country at heavy expense, the revenues for the year were sufficient to pay all the operating expenses, and leave a balance of net revenue from railway operation of nearly \$7,000,000. Two thousand steel box cars of the most modern design were delivered during the year and have proved valuable in handling high-class traffic. Ten air-conditioned buffet sleeping cars, six air-conditioned dining cars, five mail and express cars, twenty-five sand cars and twenty-four snow ploughs have been added to the company's equipment. Locomotives purchased consisted of six 4-8-4 type semi-streamlined passenger engines, designed for use in the heavy and fast passenger train service to and from Chicago, and two diesel switching locomotives for use on the United States lines. The Canadian National branch line serving the mining develop-

ment in Northern Quebec between Senneterre and Rouyn, which has been under construction for the past two years, was completed and formally opened on December 3. This line serves a region which has proved rich in mineral wealth, and with the provision of direct railway transportation it is expected that further development will take place. The provision of this branch line, as well as the earlier branch line from Taschereau to Rouyn to serve the Noranda development, furnishes an illustration of the pioneering development work carried on by the Canadian National. While the provision of railway transportation has enabled a substantial mining development to take place with general benefit to the country, the railway from a financial standpoint must look to the traffic of the future to obtain a fair return upon the capital which has been expended.

Work on the Montreal terminals, which has been suspended for some time, will be resumed at once on a substantially modified plan, and the

work will be proceeded with by stages, as conditions warrant. This plan, which provides for a new central station and for improved freight and passenger facilities in the city area, will enable the company to handle traffic more economically and expeditiously. The revenues of the Canadian National (West Indies) Steamships Limited continued to improve, and were the highest in the history of the line. Canada's trade with the West Indies has increased steadily since the inauguration of this service by the Canadian National in 1925, and particularly since the putting into service of the *Lady* liners in 1929. The year 1938 also saw the opening of air express and mail-carrying services between Montreal, Vancouver, and intermediate centres, over the nationally-owned Trans-Canada Air Lines. Operations will be extended eastward to Moncton, Saint John, and Halifax when facilities have been made ready. Delivery of the fifteen high-speed latest type transport planes which were ordered has now been completed. Looking at 1939, the general outlook for the Canadian National system is distinctly better, and it would seem reasonable to expect that the improved conditions, which became manifest in the last quarter of 1938, will continue.

New Southern Electric Poster



**NOW — TO ASCOT
READING
CAMBERLEY BY
SOUTHERN ELECTRIC**

Mr. Chas. Pears has designed for the Southern Railway the accompanying poster drawing attention to the company's new electrification to Reading. Electric trains are often criticised on the grounds that they are uninspiring to the eye and clangorous to the ear. Mr. Pears's train speeding under a blue sky adorned with the pink-tinged clouds of sunset, has the venturesome appearance of Alice exploring a fairy-hued Wonderland. Its wheels, the beholder feels sure, hammer out no unseemly "dingety-dong" to affright the sentinel trees, the rolling heath, and the silent hills. The text of the poster reminds the public that the new electric services convey travellers to the rural pleasures of Camberley and Ascot, as well as through to Reading. Mr. Pears has succeeded splendidly in making the idea of the journey attractive, and we look forward to the evening when we, too, will step into his twilight express at Waterloo and, behind its golden-gleaming windows, slip away from the bricks and mortar of London into a landscape as yet unspoiled by the builder.

The Tramways of Germany

Development of the system of transport which still provides the bulk of urban communication services

In a paper presented to the Tramway & Light Railway Society in London recently, Mr. Charles E. Lee pointed out that Germany was the birthplace of the rail and flanged wheel, and also, many centuries later, of that motive power—electric traction—which made rail traction readily applicable to urban and local needs. The first urban passenger tramway in Europe was the *Pferde-Eisenbahn*, which was maintained in Vienna from 1840 to 1842. Then 23 years elapsed before the passenger tramway appeared again in any German city, but in 1865 lines were opened in Berlin (on June 22) and in Vienna (on October 4). In early years only animal traction was used, but during 1876-7 various unsuccessful test runs with steam trams were made in Berlin. The successful introduction of steam trams was due to British enterprise, which interested itself in German tramways in the late eighteen seventies; the pioneer was the Kassel tramway, which was opened with British-built Merryweather tramway locomotives on July 9, 1877.

Electric Traction Introduced

The credit for introducing electric propulsion from an external source is due to Dr. Werner von Siemens, of the famous German firm of Siemens & Halske, who developed his system in the 'seventies of last century. It is stated that his main object in taking the lead in this application of electricity was because he held the opinion that the electrical equipment of railways would be commercially more profitable than the sale of motors for stationary plant. In order to introduce electric traction to the public, a miniature railway was laid down as an exhibit at the Berlin Trades Exhibition and opened on May 31, 1879. This line, which was about 90 yd. long, remained in operation until the close of the exhibition on September 30, carrying over 80,000 passengers. The exhibition line attracted a great deal of attention, and its success led almost immediately to something more practical, namely, a public commercial line at Lichterfelde, near Berlin. This extended from the Anhalt station to the Cadet School, a distance of about 2,680 yd., or a little over 1½ miles. The track was on private ground, and the rails were laid on wooden sleepers. Current was obtained from one of the running rails and returned by the other, the insulation provided by the wooden sleepers proving adequate for the working pressure of 180 volts. The wheels of the car, which served as collectors, were insulated on one side of the car by means of wooden bushings and provided with insulated slippers, from which the current was collected by brushes. This railway, which was opened on May 12, 1881, was the first electrically-operated line in the world to be used for public service. The carriages, each seating

26 persons, were of the single-deck tramway type. Buffers and couplings were fitted, but there is no record of the cars ever being run coupled.

Current Collection

The obvious disadvantages of tramways or light railways on public highways or unfenced land which arose from the methods of collecting current from either the running rails or a third rail, led Dr. von Siemens to experiment with overhead wires. In the early 1880's he laid down three lines in the neighbourhoods of Frankfurt-on-Main, Vienna, and Berlin. Two systems were developed. The line near Berlin which extended from Charlottenburg to Spandauer Bock was opened in May, 1882, and involved a gradient of 1 in 30. This was equipped with two overhead cables mounted close together. On these wires ran a small contact trolley, which was drawn along and attached to the car by means of a rope; the wheels of the trolley were insulated. This system was soon discarded. The second system was the provision of two longitudinally-slotted tubular conductors suspended above the track. Contact shuttles were inserted in each tube and drawn along by the car. The earliest lines to be equipped on this arrangement were those from Moedling (near Vienna) to Vorderbrühl, and later to Hinterbrühl (4½ miles), and from Frankfurt to Offenbach (3½ miles). The development in America of the trolley-wheel collector allowing of a single wire and a much lighter method of suspension was followed by the general adoption of electric tramways in many towns throughout the United States. Continental Europe followed from about 1891 onward, although in many cases the bow collector was used instead of the trolley wheel and arm, and in Germany today the bow collector is almost universal, with Berlin and Munich as notable exceptions.

Little Motorbus Competition

In Germany there has never been any serious competition between motorbuses and tramcars, and no widespread movement for the abolition of tramways. On the contrary, at any rate in the larger cities, the tramways have been maintained in a very fair state of efficiency and many of them have been completely modernised, so that at the present time urban passenger transport throughout Germany is still maintained chiefly by street tramway undertakings. Excluding Austria and Sudetenland, there are at present 168 German cities and towns with tramway systems, and their total route mileage is approximately 5,616 km. (3,490 miles). Of this 2,262 km. (1,406 miles) is single track, and 3,354 km. (2,184 miles) double track. With the exception of one remaining horse tramway, 3.5 km. (2 miles) long on Spiekeroog Island, only electric

traction is used for passenger services. There are a few lines, however, which continue to use steam traction for goods haulage. Apart from Berlin, buses are not used extensively for urban services. The next largest bus fleet is at Dresden, which is served by the Dresden Tramways Company. This company began to run buses in 1935 and now has some 75 diesel buses and two trailers in use. Through the courtesy of Dr. Julius Dormmüller, the Reich Minister of Transport; of Ministerialrat Dr. Gerhard Sommer; and of Dr. Bauer of the Reichsverkehrsgruppe Schienenbahnen; Mr. Lee quoted a series of interesting figures relating to 173 undertakings (including five which are not passenger street tramways, but special types of light railway). With regard to gauge, it was found that 51 concerns with a total of 2,710 km. (1,684 miles) use the standard gauge of 4 ft. 8½ in. Practically the same mileage—2,717 km. (1,688 miles)—is laid on the metre gauge, but this is divided among 113 undertakings. The balance of 505 km. (313 miles) is divided among nine concerns, and no fewer than six gauges. The complete gauge distribution is as follows:—

Gauge	Route-mileage.
1.435 m. (4 ft. 8½ in.)	...2,710 km. (1,684 miles)
1.000 m. (3 ft. 3½ in.)	...2,717 km. (1,688 miles)
1.458 m. (4 ft. 9½ in.)	... 161 km. (100 miles)
1.450 m. (4 ft. 9 in.)	... 178 km. (110 miles)
1.440 m. (4 ft. 8½ in.)	... 14 km. (9 miles)
1.110 m. (3 ft. 7½ in.)	... 107 km. (66 miles)
0.925 m. (3 ft. 0½ in.)	... 43 km. (26 miles)
0.785 m. (2 ft. 6½ in.)	... 2½ km. (1½ miles)

Municipal Control

Urban tramways are very largely in the hands of the municipal authorities, or under their control. Official figures show that, of the 168 town systems, 68 undertakings are worked by public authorities, 72 by public companies, and 28 by private limited companies. This bald statement does not represent the position adequately, as there are very considerable municipal shareholdings in all but 23 of the 100 companies concerned. In 33 companies the authorities hold 100 per cent. of the shares; in 30 more companies over 50 per cent.; and in 14 others under 50 per cent. Some idea of the magnitude of the German tramway industry is given by the facts that it employs about 95,000 persons; it conveys some 2,810 millions of passengers per annum; and the annual receipts are in the neighbourhood of 441,000 millions of RM. The passenger rolling stock totals 13,313 motor vehicles and 24,136 trailers; these figures reveal the extensive use of the trailer car.

HOTEL IMPROVEMENTS AT COBH.—

Strong complaint has been made for some years regarding the want of hotel accommodation at Cobh (Queenstown), and the States Hotel is now being partly rebuilt and completely modernised, with 50 bedrooms, cocktail bar, &c. It is hoped that the hotel will be open on June 1 next, and that there will be sufficient patronage to justify the expenditure. The hotel will at least give a favourable first impression to tourists arriving from America.

NOTES AND NEWS

Home Railway Final Dividend Dates.—Final dividend announcements of the four main-line railway companies are expected to be made upon the following dates: February 6, Southern; February 8, London Midland & Scottish; February 10, Great Western; February 17, London & North Eastern.

London Transport Railway Rolling Stock.—During 1938 the London Passenger Transport Board placed in service 370 new railway cars. In 1939 three new trains of improved types will be added to the board's stock every week. In addition, a number of District and Metropolitan trains will be reconditioned and fitted with automatic doors.

Calendars and Christmas Cards.—Since publishing our list last week, we have received calendars and Christmas cards from the following:—

Calendars: The Bournehall Press, A. A. Jones & Shipman Limited, Pennsylvania Railroad, L. T. A. Robinson Limited.

Christmas Cards: Great Western Railway—Mr. A. Maynard (Chief Goods Manager) and staff; Nigerian Railway—the General Manager and staff.

Southern Railway New Debenture Stock.—The Southern Railway Company invited subscriptions on Wednesday, January 11, to an issue, at 98½ per cent., of £7,500,000 4 per cent. redeemable debenture stock, 1970–80. Applications opened on Wednesday, and the lists were closed early on that day as the issue was fully subscribed. The new stock ranks equally with the existing debenture stocks of the company

and is to be redeemed at par on June 30, 1980. Interest is payable on January 1 and July 1. This issue is being made to reimburse the company for certain capital expenditure already incurred on electrification and other works and to meet the cost of further additions and improvements.

Trains Bombed in Spain.—During an air raid on Tarragona on January 4, two passenger trains in the station were hit by bombs. The trains were fully loaded and the casualties are estimated at 30 killed and 40 injured.

Canadian National Railway Loan.—Subscription lists opened on January 11 for a new \$50,000,000 issue of Canadian National Railway Dominion guaranteed bonds. Of the issue, \$40,600,000 will be devoted to repayment of temporary loans made by the Dominion Government, and the balance will be used to liquidate funded obligations due shortly to mature.

Further Reichsbahn Acquisitions.—The following sections of railway previously operated by the Lokalbahn A.G. have now been taken over by the Reichsbahn: Murnau-Oberammergau; Markt Oberdorf-Füssen; and Sonthofen-Fischen-Oberstdorf. From January 1 the 60 per cent. reduced rate tickets apply to these sections instead of the 25 per cent. reduction which was hitherto in force.

More G.W.R. Camp Coaches This Year.—Camp coaches, situated at selected beauty spots on the Great Western Railway, will again be available for holidaymakers this year between April 1 and October 28. The number has been increased to 65, which is five more than last year, when the 60 coaches were let to 700 parties, totalling approximately 4,000 persons. All the sites used in 1938 will be retained except Princetown in Devon, Penryn in Cornwall, and Arley in Worcestershire. The eight new sites chosen for 1939 are Lelant in Cornwall, Chudleigh and Churston in Devon, Conwil and Saundersfoot in South Wales, Newbridge-on-Wye in Central Wales, and Aberdovey and Llwyngwrl on the Cambrian Coast.

French Proposal for Channel Tunnel.—A proposal that the French and British Governments should combine to carry out a Channel tunnel scheme is contained in a resolution to be submitted to the French Chamber by M. Boucher, deputy for the Vosges. M. Boucher's proposals have been sent for examination to the Foreign Affairs Committee. The Deputy urges the construction of a 10-ft. pilot tunnel, followed by the construction of two full-size railway tunnels 32 miles long, 20 miles of which would be under the sea, and a 30-miles long road tunnel. It is estimated that the works would take five years and cost at least fr. 4,000,000,000 (about £22,000,000),

and that when in operation the concern would show a return on capital of 6 per cent. Nearly sixty years ago shafts were sunk at Shakespeare Cliff, near Dover, and at Calais. On the English side the tunnel was projected nearly two miles under the channel.

Kitson & Co. Ltd. Capital Reduction.—Notice is given in *The London Gazette* of January 6 that the Order of the High Court dated December 19, 1938, confirming the reduction of the capital of Kitson & Co. Ltd. from £335,000 to £178,311 was registered by the Registrar of Companies on January 2, 1939.

London Transport Road Fleets.—For replacements and to serve new and extended routes, 83 new double-deck buses, 17 new single-deckers, and 262 new coaches, were placed on the road during the last twelve months by the London Passenger Transport Board. The 1939 programme provides for 340 new buses and 87 new coaches. The trolleybus system has been extended over 66 miles of roads in North London and the new programme provides for extensions over 33 miles in north-east and east London. The trolleybus fleet was increased by 450 vehicles in 1938, and 400 more will be added during the present year.

G.W.R. Buffet Car Services.—The Great Western Railway Company announces the following alterations in regard to buffet car services. On and from Saturday, January 14, buffet car facilities will be withdrawn from the undermentioned trains:—

11.15 a.m. Wolverhampton to Weymouth.
10.30 a.m. Weymouth to Wolverhampton.
8.0 a.m. Newton Abbot to Swansea (High Street).

9.5 a.m. Swansea (High Street) to Torquay and Paignton.

Beginning on Monday next, January 16, buffet car facilities will be provided on the following trains:—

1.18 p.m. Paddington to Weston-super-Mare (On Saturdays restaurant car to Bristol (T.M.)).

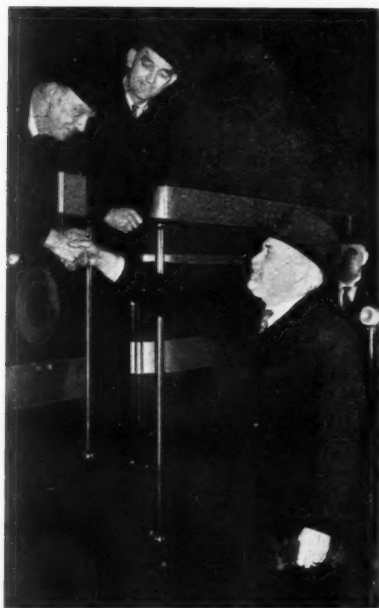
6.50 p.m. Weston-super-Mare (7.35 p.m. Bristol (T.M.)) to Paddington (except Saturdays).

5.15 p.m. Paddington to Didcot.

8.40 a.m. Oxford to Paddington.

12.20 p.m. Cardiff to Bristol, Salisbury, and Brighton.

11.0 a.m. Brighton (1.53 p.m. Salisbury) to Bristol and Cardiff.



Lord Stamp saying farewell to the locomotive crew of the Coronation Scot train before its departure for the U.S.A. (See page 58)

Staff and Labour Matters

Railway Shopmen

The National Railway Shopmen's Council met in London on Wednesday for the purpose of further considering the application made by the employees' side of the council for a reduction in hours of work and in improvements in rates of pay and conditions of service of railway shopmen. The question of arbitration was discussed and is being considered by both sides.

Forthcoming Events

- Jan. 14 (Sat.).—Permanent Way Institution (Manchester-Liverpool), at Technical Inst., Liverpool, 3 p.m. "Permanent Way Institution Convention in Germany, 1938," by Mr. W. A. Willox.
- Jan. 16 (Mon.).—Engineers' German Circle, at Inst. of Mechanical Engineers, Storey's Gate, London, S.W.1, 6 p.m. "Entwicklungsrichtungen Im Neuzeitlichen Werkzeugmaschinenbau Unter Besonderer Berücksichtigung der Schwerwerkzeugmaschinen (Lines of Development of Recent Machine Tool Construction, with Special Reference to Heavy Machine Tools)," by Dipl. Ing. E. Grund.
- Jan. 16 (Mon.).—Institute of Transport (Scottish), at North British Station Hotel, Edinburgh, 7.15 p.m. "Some Reflections on Agreed Charges," by Mr. A. Smart.
- Railway Students' Association, at London School of Economics, Houghton Street, W.C.2, 6 p.m. "The History, Functions, and Powers of Railway Police," by Mr. G. Stephens.
- Jan. 17 (Tues.).—Institute of Metals (Birmingham), at James Watt Inst., Great Charles Street, 7 p.m. "Practice in Mechanical Testing," by Mr. V. Green.
- Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 6 p.m. "The Railways and the Trader," by Mr. A. Hastie.
- Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. Joint

- Meeting with Société des Ingénieurs Civils de France (British). "The Strengthening of the Austerlitz Bridge (Paris) by Electric Arc Welding," by M. Fauconnier.
- Institution of Heating and Ventilating Engineers (London), at Junior Inst. of Engineers, 39, Victoria Street, S.W.1, 6.45 p.m. "Some Notes on Engineering Works in Switzerland," by Mr. J. Bryant.
- Institution of Locomotive Engineers (Manchester), at Literary and Philosophical Society, 36, George Street, 7 p.m. "Locomotive Drawing Office Practice," by Mr. E. Appleyard.
- L.N.E.R. (York) Lecture and Debating Society, at Railway Inst., Queen Street, 6.45 p.m. "The Present Economic Position of Great Britain," by Mr. E. McCallum.
- Jan. 18 (Wed.).—Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "Co-operation between the Civil Engineer and the Military Engineer," by Sir Clement D. M. Hindley, K.C.I.E. and Lt.-Col. F. H. Budden, M.C. (late R.E.).
- Jan. 19 (Thurs.).—Institution of Locomotive Engineers (Scottish), at Royal Technical College, George Street, Glasgow, 7.30 p.m. "Oxy-Acetylene Welding and its Application to Railway Work."
- Jan. 20 (Fri.).—Institute of Transport (East Midlands), at Guildhall, Nottingham, 7 p.m. "Recent Economic Trends in the Transport Industry," by Mr. K. Fenelon.
- Permanent Way Institution (Hull), at Lecture Hall, Paragon Station, 7 p.m. Question Night.

British and Irish Railway Stocks and Shares

Stocks	Highest 1938	Lowest 1938	Prices	
			Jan. 11, 1939	Rise/ Fall
G.W.R.				
Cons. Ord.	65 ¹ / ₄	25 ³ / ₄	25	-3
5% Con. Prefce....	118 ³ / ₄	74	82 ¹ / ₂	—
5% Red. Pref. (1950)	111 ³ / ₄	90	92 ¹ / ₂	—
4% Deb.	111	97 ¹ / ₂	99 ¹ / ₂	-2
4 ¹ / ₂ % Deb....	112 ⁵ / ₁₆	100 ¹ / ₂	102 ¹ / ₂	-2
4 ¹ / ₂ % Deb....	118 ¹ / ₂	104	108 ¹ / ₂	—
5% Deb....	131 ¹ / ₂	119	118 ¹ / ₂	-2
2 ¹ / ₂ % Deb....	69 ³ / ₄	60	63 ¹ / ₂	-1
5% Rt. Charge ...	129	114	115 ¹ / ₂	-1
5% Cons. Guar. ...	128 ¹ / ₂	103	109 ¹ / ₂	—
L.M.S.R.				
Ord.	30 ¹ / ₂	11	12 ¹ / ₄	-1 ¹ / ₄
4% Prefce. (1923)	70 ¹ / ₄	23	27 ¹ / ₂	-2 ¹ / ₂
4% Prefce.	82 ¹ / ₄	43 ³ / ₄	47 ¹ / ₂	-3
5% Red. Pref. (1955)	103 ¹ / ₂	66	69 ¹ / ₂	-2
4% Deb.	105 ¹ / ₁₆	85	95 ¹ / ₂	-2
5% Red. Deb. (1952)	114 ¹ / ₄	105	106	-2
4% Guar.	102 ³ / ₄	77 ¹ / ₂	83 ¹ / ₂	-1
L.N.E.R.				
5% Pref. Ord.	89 ¹ / ₁₆	31 ¹ / ₂	41 ¹ / ₄	-1 ¹ / ₄
Def. Ord.	47 ¹ / ₁₆	21 ¹ / ₁₆	23 ³ / ₈	—
4% First Prefce.	68 ¹ / ₄	21	25 ¹ / ₂	-2
4% Second Prefce.	27 ¹ / ₄	8	10	-1
5% Red. Pref. (1955)	97	40 ¹ / ₄	45 ¹ / ₂	—
4% First Guar.	97 ¹ / ₂	66 ¹ / ₄	72 ¹ / ₂	—
4% Second Guar.	91 ¹ / ₄	52	61 ¹ / ₂	-1
3% Deb.	79 ¹ / ₄	60	69 ¹ / ₂	-2
4% Deb.	104 ¹ / ₈	77	90	-2
5% Red. Deb. (1947)	110 ⁵ / ₈	97	104 ¹ / ₂	—
4 ¹ / ₂ % Sinking Fund Red. Deb.	108 ¹ / ₁₆	101	103	-1
SOUTHERN				
Pref. Ord.	87	47 ⁷ / ₈	57	-1
Def. Ord.	21 ³ / ₄	9 ¹ / ₄	12	-5 ¹ / ₄
5% Pref.	115	83	91 ¹ / ₂	-1
5% Red. Pref. (1964)	115 ¹ / ₂	98	100 ¹ / ₂	—
5% Guar. Prefce./	128 ¹ / ₂	106	114 ¹ / ₂	-1
5% Red. Guar. Pref. (1957)	116	109 ¹ / ₂	111 ¹ / ₂	—
4% Deb.	109 ¹ / ₄	95	98 ¹ / ₂	-3
5% Deb.	129	117	117 ¹ / ₂	-2
4% Red. Deb. 1962-67	107	101 ¹ / ₂	101	-4 ¹ / ₂
BELFAST & C.D.				
Ord.	4	3 ¹ / ₂	4	—
FORTH BRIDGE				
4% Deb.	102	99 ¹ / ₈	96 ¹ / ₂	—
4% Guar.	103 ¹ / ₄	94 ¹ / ₂	95	-2
G. NORTHERN (IRELAND)				
Ord.	5 ¹ / ₂	2 ¹ / ₂	3 ¹ / ₂	-1 ¹ / ₂
G. SOUTHERN (IRELAND)				
Ord.	25 ¹ / ₂	8 ¹ / ₂	15	—
Prefce.	35	13	13	—
Guar.	70 ¹ / ₄	30 ¹ / ₁₆	30 ¹ / ₂	—
Deb.	83	56	55	-1
L.P.T.B.				
4 ¹ / ₂ % "A"	119 ⁵ / ₈	107 ¹ / ₂	111 ¹ / ₂	—
5% "A"	130	117	119 ¹ / ₂	—
4 ¹ / ₂ % "T.F.A." ..	108	98	102 ¹ / ₂	—
5% "B"	122 ¹ / ₁₆	105	116 ¹ / ₂	—
"C"	84	68	74	-1 ¹ / ₂
MERSEY				
Ord.	24 ¹ / ₄	16 ¹ / ₂	20	—
4% Perp. Deb.	102 ⁷ / ₈	94 ³ / ₄	94 ¹ / ₂ *	-1
3% Perp. Deb.	77	69	66 ¹ / ₂ *	-1
3% Perp. Prefce.	66 ¹ / ₂	57	55	—

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 1st Week			Totals to Date		
	1939	1938	Inc. or Dec.	1939	1938	Inc. or Dec.
L.M.S.R. (6,831 ¹ / ₄ mls.)	£	£	£	£	£	£
Passenger-train traffic...	366,000	382,000	- 16,000	366,000	382,000	- 16,000
Merchandise, &c. ...	345,000	449,000	- 104,000	345,000	449,000	- 104,000
Coal and coke ...	278,000	304,000	- 26,000	278,000	304,000	- 26,000
Goods-train traffic ...	623,000	753,000	- 130,000	623,000	753,000	- 130,000
Total receipts ...	989,000	1,135,000	- 146,000	989,000	1,135,000	- 146,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	244,000	262,000	- 18,000	244,000	262,000	- 18,000
Merchandise, &c. ...	223,000	297,000	- 74,000	223,000	297,000	- 74,000
Coal and coke ...	213,000	255,000	- 42,000	213,000	255,000	- 42,000
Goods-train traffic ...	436,000	552,000	- 116,000	436,000	552,000	- 116,000
Total receipts ...	680,000	814,000	- 134,000	680,000	814,000	- 134,000
G.W.R. (3,737 mls.)						
Passenger-train traffic...	168,000	169,000	- 1,000	168,000	169,000	- 1,000
Merchandise, &c. ...	161,000	189,000	- 28,000	161,000	189,000	- 28,000
Coal and coke ...	117,000	128,000	- 11,000	117,000	128,000	- 11,000
Goods-train traffic ...	281,000	317,000	- 36,000	281,000	317,000	- 36,000
Total receipts ...	449,000	486,000	- 37,000	449,000	486,000	- 37,000
S.R. (2,140 mls.)						
Passenger-train traffic...	260,000	266,000	- 6,000	260,000	266,000	- 6,000
Merchandise, &c. ...	47,000	51,500	- 4,500	47,000	51,500	- 4,500
Coal and coke ...	28,000	31,500	- 3,500	28,000	31,500	- 3,500
Goods-train traffic ...	75,000	83,000	- 8,000	75,000	83,000	- 8,000
Total receipts ...	335,000	349,000	- 14,000	335,000	349,000	- 14,000
Liverpool Overhead ...	1,507	1,422	+ 85	1,507	1,422	+ 85
Mersey (4 ¹ / ₂ mls.) ...	4,854	4,827	+ 27	4,854	4,827	+ 27
*London Passenger Transport Board ...	574,300	568,500	+ 5,800	574,300	568,500	+ 5,800
IRELAND.						
Belfast & C.D. pass. (80 mls.)	1,580	1,553	+ 27	1,580	1,553	+ 27
" " goods	291	283	+ 8	291	283	+ 8
" " total	1,871	1,836	+ 35	1,871	1,836	+ 35
Great Northern (543 mls.) pass.	8,850	8,850	—	8,850	8,850	—
" " goods	6,800	6,350	+ 450	6,800	6,350	+ 450
" " total	15,650	15,200	+ 450	15,650	15,200	+ 450
Great Southern (2,076 mls.) pass.	30,544	30,212	+ 332	30,544	30,212	+ 332
" " goods	42,039	47,460	- 5,421	42,039	47,460	- 5,421
" " total	72,583	77,672	- 5,089	72,583	77,672	- 5,089

* 28th Week (before pooling)

* ex dividend

CONTRACTS AND TENDERS

L.N.E.R. Bridge Contract

The Butterley Co. Ltd. has received a large bridge contract for the L.N.E.R. through J. Bills, Contractor, Forest Gate, London, E.7, for the Colchester to Clacton-on-Sea widening. Two bridges are required, one carrying the railway over Thorpe Road, and the other carrying the line over Valley Road. This work is being carried out by the railway company for the Essex County Council, and 300 tons of new steelwork are to be used.

New Tube Station at Ilford

An agreement has been reached between the London Passenger Transport Board, the Minister of Transport, the Ilford Corporation, and Essex County Council in regard to the construction by the board of a sub-surface station at Gants Hill Cross, Ilford, on the extension of the Central London tube from Liverpool Street to Ongar. The Ministry of Transport will pay £12,000, Ilford Corporation £3,200, and Essex County Council £4,800 towards the cost of the station, and £996, £266, and £398 respectively for the acquisition of additional land. The estimated cost of constructing the station is £120,000, and the design is modelled on that at Piccadilly. The station will be named Gants Hill.

British Locomotives for Turkey

The British locomotive manufacturing industry has sent a special mission to Turkey to ensure that as a result of the Anglo-Turkish Guarantee Agreement, a part of the credit facilities concerned shall be used for the purchase of British locomotives. In an exclusive interview with *The Financial Times*, Mr. J. W. Vaughan, Secretary of the Locomotive Manufacturers' Association, who, with two technical advisers, visited Turkey in this connection, stated that he was confident British manufacturers would shortly receive orders for 42 1E class 2-10-0 locomotives and tenders, representing a contract valued at over £500,000. He explained further that arrangements were being made for the appointment of a principal agent for the British locomotive industry in Turkey to advise the trade on both technical and commercial matters.

Mr. Tubini, the present agent for Stephenson & Hawthorns, had been proposed as Principal Agent to co-ordinate the work of other locomotive agents in Turkey and to keep in close mail contact with the Locomotive Manufacturers' Association in London. Mr. Vaughan stated that he had formed a high opinion of the Turks and the Turkish Administration, and was convinced that if a more positive policy was pursued by British manufacturers the scope for enlarging our exports to that market was substantial. It had been decided to standardise the 1E class locomotive for the time being, and it was essential all parts of any British locomotives supplied should be inter-

changeable with German engines already in use, though the Turkish Railway Administration was prepared to consider materials for locomotives in accordance with British Standard Specifications, provided they were at least equal to those made to German standards. The Turkish Minister of Public Works expressed his readiness to receive a consortium offer, if necessary, from two or three British concerns acting together, though under the laws governing the adjudicating of tenders for the Turkish State Railways it was not permissible to ask for or accept tenders from one country alone. All contracts were on a c.i.f. basis, and German locomotives had been transported to Turkey on their own wheels.

Mr. Vaughan also mentioned in his interview with our contemporary that all the Turkish engineers were German-trained, all the chief technicians were German, German drivers were common in Turkey, and the running shed foreman at Ankara was a German from Henschels works, so that, although no prejudice existed against the British product on the part of the Turkish Government, it would be natural for comparisons to be drawn by the technicians tending to favour the German product. After the signing of the Guarantee Agreement, it became known that £1,500,000 of the £10,000,000 commercial credit had been appropriated for the provision of a train ferry across the Bosphorus between Istanbul and Hyardapassa, and for the purchase of locomotives, rolling stock, and other transport requirements. A very progressive railway policy was being followed in Turkey, our contemporary further quotes Mr. Vaughan, locomotives and rolling stock were in good order, as also stations and signalling equipment. All wagon stock was eventually to be fitted with air brakes, although at present only about 30 per cent. were so fitted.

William Jacks & Co. Ltd. has received an order from the Indian Stores Department for 479 locomotive tyres at a total price of Rs. 126,217.

R. Wright & Partners Limited has received an order from the Indian Stores Department for 333 steel locomotive tyres at a total price of Rs. 51,436.

It is reported that the Société Nationale des Chemins de Fer (the French National Railways Company) is to order two fast cross-Channel passenger steamers from Forges et Chantiers de la Méditerranée and a 400-ton collier from the Chantier de Normandie of Chantier et Ateliers de Saint Nazaire Penhoët.

The Chief Controller of Stores, Indian Stores Department, New Delhi, has placed orders with E. Loeffler, R. Wright & Partners Limited, Heatly & Gresham Limited, and Electro Mechanics Limited respectively, for 17,215, 2,000, 30,768, and 1,667 steel boiler tubes.

Tenders are invited by the Bombay, Baroda & Central India Railway Administration, receivable by February 3, at the White Mansion, 91, Petty France, Westminster, S.W.1, for the supply of steel material, including channels, angles, and plates.

Tenders are invited by R. C. Vaughan, Vice-President in Charge of Purchases and Stores, Canadian National Railways, for the supply of 2,000 box cars, 10 baggage cars, five mail and express cars, one ballast spreader, two steam derricks, and one locomotive derrick. The total value of these enquiries is estimated at between \$8,000,000 and \$9,000,000. In addition, plans are being drawn up for the construction of a number of cabooses and refrigerator cars by the C.N.R. in shops across Canada. This Administration last year ordered new rolling stock to the value of somewhat less than \$18,000,000, and in the previous year ordered equipment totalling just under \$7,000,000, while in the depression years preceding there was practically no rolling stock ordered at all. Depreciation on box cars particularly is believed to have been very heavy in the idle years, as a large proportion of this type of equipment was out-of-date wooden-framed freight cars inherited from railways absorbed by the C.N.R. system.

Among the firms which have been invited to tender for the new Southern Railway cross-Channel steamer, the pending order for which we referred to last week, are the following: Cammell Laird & Co. Ltd., Birkenhead; Fairfield Shipbuilding & Engineering Co. Ltd., Govan; Swan, Hunter & Wigham Richardson Limited, Wallsend; Wm. Denny & Bros. Ltd.; John I. Thornycroft & Co. Ltd.; Scotts' Shipbuilding & Engineering Co. Ltd.; J. Samuel White & Co. Ltd., Cowes; and John Brown & Co. Ltd., Clydebank. The tenders are to be submitted by January 19.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by January 25, for the supply of 480 drawbar hooks required for the North Western Railway.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Electrical Section), New Delhi, receivable by January 28, for the supply of 336 lb. of mica and 3,684 lb. of bare copper wire.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by January 23, for the supply of 300 broad-gauge steel carriage axles and 1,500 steel carriage and wagon tyres, required for the North Western Railway.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, receivable by January 30, for the supply of 2,300 buffer plungers and 2,000 buffer casings, required for the North Western Railway.

LEGAL AND OFFICIAL NOTICES

In the Court of the Railway Rates Tribunal.
Road and Rail Traffic Act, 1933.

Agreed Charges.

NOTICE IS HEREBY GIVEN that Applications for the approval of Agreed Charges under the provisions of Section 37 of the Road and Rail Traffic Act, 1933, short par-

ticulars of which are set out in the Schedule hereto, have been lodged with the Railway Rates Tribunal.

The Procedure to be followed in regard to the inspection of the said Applications and the filing of Notices of Objections is that published in the London Gazette of 28th July, 1936.

Printed copies of the Procedure can be obtained from the Railway Rates Tribunal, Bush House, Aldwych, London, W.C.2.

Notices of Objection to any of the said

Applications must be filed on or before the 31st January, 1939.

A copy of each Application can be obtained from Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, Fielden House, Great College Street, Westminster, London, S.W.1, price 1s. post free.

T. J. D. ATKINSON,
Registrar.

9th January, 1939.

Number of Application	Name of Trader and General Description of Traffic	Number of Application	Name of Trader and General Description of Traffic
1938		1939	
No. 826	FREARSON & CO. LTD., Victoria Street, Grimsby; Animal Medicines, Foods and Embrocations, Poultry Powders, etc.	No. 28	THOMAS MARSHALL (MARLBECK) LIMITED, Marlbeck House, Great George Street, Leeds; Ladies' Coats, Costumes, etc.
No. 827	LAWTON MANUFACTURING CO. LTD., Lawton Works, Roger Street, London, W.C.1.; Concrete or Plaster Figures and Ornaments, etc.	No. 29	RHONA ROY DRESSES LIMITED, Princess House, Eastcastle Street, London, W.1; Dresses and Gowns.
No. 828	CLIFFORD WILLIAMS & SON LTD., Anne Road, Handsworth, Birmingham, 21; Clothing, etc.	No. 30	JAMES AIKMAN & SONS, 43/53, Jeffrey Street, Edinburgh; Boots and Shoes.
No. 829	THE GREAT UNIVERSAL STORES LIMITED, Devonshire Street, Ardwick, Manchester; Clothing, Drapery and General Stores Wares ex Acton, Wembley, and Manchester Passenger stations. (Applicable also to traffic consigned by eight Associated or Subsidiary Companies.)	No. 31	J. H. BOUNDS, Stethos House, 68, Sackville Street, Manchester; Cotton, Linen, and Woollen Goods.
No. 830	HARTLEY, SONS & CO. (HEBDEN BRIDGE) LTD., Linden Works, Hebdlen Bridge; Clothing.	No. 32	BRITISH STEAM SPECIALTIES LIMITED, Fleet Street, Leicester; Machinery Parts, etc.
No. 831	RYLANDS & SONS LTD., High Street, Manchester, 4; Drapery and Textiles.	No. 33	MONTAGUE BURTON LIMITED, Hudson Road Mills, Leeds, 9; Clothing.
No. 832	THORNER BROS. LTD., Square Works, Mytholmroyd, Yorks, Poultry, Chicken Brooders and Fittings.	No. 34	DOMINION DAIRY CO. LTD., Aylesbury, Bucks; Butter, Cheese, etc.
No. 833	THE VICTORIA CREAMERY CO. LTD., Airdrie; Confectionery, etc.	No. 35	DRYAD LIMITED, 42, Saint Nicholas Street, Leicester; Cane Work Plywood, etc.
No. 834	R. SUTCLIFFE & CO., Melbourne Works, Hebdlen Bridge; Clothing.	No. 36	ALFRED E. JONES LIMITED, 28, St. John's Avenue, Aintree, Liverpool, 9; Meat, Meat Pies, and Sausages.
1939		No. 37	LEAR, BROWNE & DUNSFORD, Exeter; Clothing, Drapery, etc.
No. 2	W. & R. R. ADAM LIMITED, Greenhill Works, Kidderminster; Carpets.	No. 38	PREMIER YEAST CO. LTD., Long Drive, Greenford, Middlesex; Yeast.
No. 3	ATKINS BROS. (HUSCKLEY) LTD., Hinckley; Hosiery.	No. 39	S. A. SQUIRRELL & CO., Colton Street, Leicester; Boots and Shoes.
No. 4	BUFF, VOSPER & KNIGHT LIMITED, 103, Old Town Street, Plymouth; Clothing, Drapery, and Woollen Goods, etc.	No. 40	TURNBULL & STOCKDALE LIMITED, Rosebank Print Works, Ramsbottom; Textiles.
No. 5	R. J. COLLINS LIMITED, Vanity House, Bartholomew Close, London, E.C.1; Clothing, Cushions, etc.	No. 41	THE UPLUS COAT CO. LTD., Hallidge Road, Hunslet, Leeds, 10; Clothing.
No. 6	DAVID GREIG LIMITED, The Scotch House, Waterloo Road, London, S.E.1; Groceries, Preserves, and Provisions, etc.	No. 42	R. D. WAIDELL LIMITED, Napiershall Street, Glasgow, N.W.; Bacon, Cooked Meat, etc. (Applicable also to traffic consigned by two Associated or Subsidiary Companies.)
No. 7	GEORGE HARKER & CO. LTD., 64, Park Street, Southwark, London, S.E.1; Groceries, Preserves, etc.	No. 43	THE WALL PAPER MANUFACTURERS LIMITED, 125, High Holborn, London, W.C.1; Paint and Wallpaper. (Applicable also to traffic consigned by seventeen Associated or Subsidiary Companies.)
No. 8	KELSALL & KEMP LIMITED, Rochdale; Woollen and Worsted Goods, etc. (Applicable also to traffic consigned by three Associated or Subsidiary Companies.)	No. 44	EMPIRE STORES LIMITED, Canal Road, Bradford; Clothing, Drapery, and General Stores Wares.
No. 9	MORRIS INDUSTRIES EXPORTS LIMITED, Cowley, Oxford; Motor Cars for export.	No. 45	BRITISH TECHNICAL CORK PRODUCTS CO. LTD., 14, Liverpool Road, Slough; Asbestos and Cork Washers, etc. (Applicable also to traffic consigned by two Associated or Subsidiary Companies.)
No. 10	MOSSLEY WOOLCOMBING CO. LTD., Milton Mills, Mossley, Cheshire; Woollen Yarn.	No. 46	BURNDENPT LIMITED, of Light Gun Factory, Erith, Kent; Dry Batteries. (Applicable also to traffic consigned by one Associated or Subsidiary Company.)
No. 11	ST. CUTHBERT'S PAPER WORKS LIMITED, Wells, Somerset; Paper.	No. 47	GEORGE EDWARDS & SONS LTD., Somerscotes, Derby; Hosiery.
No. 12	SUTTON & SONS LTD., The Royal Seed Establishment, Reading; Seeds, etc.	No. 48	LIVERINE LIMITED, Fraser Street, Grimsby; Poultry and Animal Foods, etc. (Applicable also to traffic consigned by one Associated or Subsidiary Company.)
No. 13	VULCANSONS LIMITED, Bell Works, Harefield, Middlesex; Hand Carts and Trolleys, etc. (Applicable also to traffic consigned by three Associated or Subsidiary Companies.)	No. 49	THE SOUTH WALES BRATTICE CLOTH & INDIA RUBBER CO. LTD., East Usk Works, Newport (Mon.); Felt, Roofing and Brattice Cloth, etc.
No. 14	JOHN BUCKLEIGH & CO., Tanners Lane, Warrington, Lancs; British Wines consigned on behalf of Messrs. Dyson & Horsfall Limited.	No. 50	UNITED SALES ORGANIZATION LIMITED, Astor House, Aldwych, London, W.C.2; Preserves, etc.
No. 15	JOHN DAVIDSON & SON, 41-49, Market Street, Kirkcaldy; Paper, etc.	No. 51	DUFFIELD & QUAYLE LIMITED, Franchise Street, Kidderminster; Carpets, etc.
No. 16	THE DOMINION TEA PLANTATION CO. LTD., Dominion House, Redcross Street, Liverpool; Tea, Coffee, and Cocoa.	No. 52	NESTLE'S MILK PRODUCTS LIMITED, 6 and 8, Eastcheap, London, E.C.3; Chocolate, Cocoa, Confectionery, etc.
No. 17	DONALDSON BROS. (ALLOA 1937) LTD., Hall Park Mills, Alloa, Scotland; Woollen and Worsted Goods. (Applicable also to traffic consigned by one Associated or Subsidiary Company.)	No. 53	A. WELLS & CO. LTD., 23A, White Street, Moorfields, London, E.C.2; Toys, etc. (Applicable also to traffic consigned by one Associated or Subsidiary Company.)
No. 18	HOVELL, SON & CO. LTD., 23, 25, 27 and 29, Emerald Street, London, W.C.1; Confectionery, Fancy Goods, etc.	No. 54	SUTTON & SONS LTD., The Royal Seed Establishment, Reading; Seeds, etc.
No. 19	HENRY C. STEPHENS LIMITED, 57, Aldersgate Street, London, E.C.1; Stationers' Sundries, etc.	No. 55	FARMA CREAM PRODUCT CO. LTD., 23/25, Prince of Wales Crescent, London, N.W.1; Butter, Cream, etc.
No. 20	THOMAS GREEN & SON LTD., Smithfield Iron Works, Leeds, 2; Lawn Mowers, Garden Seats, etc.	No. 56	A. GOLDENFELD & CO. LTD., 101, High Street, Whitechapel, London, E.1; Boots, Shoes, etc.
No. 21	ROBERT H. HALL & CO. (KENT) LTD., Paddock Wood, Kent; Portable Houses and Poultry Appliances.	No. 57	LENNARDS LIMITED, Queens Road, Bristol, 8; Boots, Shoes, etc.
No. 22	R. ROWLEY & CO. LTD., Queen Street, Leicester; Hosiery.	No. 58	RICHMOND SAUSAGE CO. LTD., 7-11, Linacre Road, Litherland, Liverpool, 21; Sausages.
No. 23	R. D. WAIDELL LIMITED, Napiershall Street, Glasgow, N.W.; Confectionery, Groceries, Preserves, and Provisions, etc. (Applicable also to traffic consigned by two Associated or Subsidiary Companies.)	No. 59	S. SIMPSON LIMITED, 92-100, Stoke Newington Road, London, N.16; Clothing, etc. (Applicable also to traffic consigned by one Associated or Subsidiary Company.)
No. 24	S. & J. WATTS & CO., Manchester; Textiles, Hardware, etc.	No. 60	WILLSONS (LONDON & PROVINCES) LIMITED, 10-18, Clifton Street, Finsbury, London, E.C.2; Blouses, Frocks, etc.
No. 25	HOWARD WALL LIMITED, 25-37, Hackney Road, London, E.2; Hardware, Haberdashery, etc.		
No. 26	THE CENTRAL AGENCY LIMITED, 50, Bothwell Street, Glasgow, C.2; Thread, Needles, etc.		
No. 27	ASPRO LIMITED, Slough, Bucks; "Aspro Tablets," etc.		

THE proprietors of the following British patents Nos. 402,019, "Improvements in or relating to Lighting and Ventilating Systems for Vehicles"; 402,994, "Improvements in or relating to Vehicle Bodies"; 437,632, "Improvements in Articulated Rail Cars"; 444,513, "Improvements in or relating to Railway Vehicle Bodies"; 450,191, "Improvements in Rail Cars" desire to introduce their inventions to the notice of Manufacturers and others with a view of the inventions being developed commercially under License or otherwise. All communications should be addressed to: T. M. CONELLY, c/o PRESSED STEEL COMPANY LIMITED, Cowley, Oxford.

Port of Preston Authority

CHIEF INSPECTOR (OUTDOOR).

THE Corporation of Preston invite applications from competent persons for the position of Chief Inspector. Applicants should have a general knowledge and practical experience of Dock operations, including Discharging and Loading of Vessels, Coal Shipping, Supervision of Quays and Warehouses, and Railway Working, also the control of labour engaged thereon.

The commencing salary is £270 per annum,

rising by annual increments of £15 to £315, with Uniform. Candidates must not be over 45 years of age on the 1st January, 1939. The applicant appointed will require to pass a medical examination and contribute to the Corporation's Superannuation Fund.

Applications stating age, experience, and present position, with copies of three recent testimonials, should be sent under cover to the Town Clerk, Municipal Building, Preston, marked "Chief Inspector," not later than 22nd January, 1939.

Legal and Official Notices—continued.

South Indian Railway Company Limited

THE Directors are prepared to receive Tenders for the supply of:—

1. COPPER PLATES.
2. STEEL TYRES.

Specifications and Forms of Tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1.

Tenders addressed to the Chairman and Directors of the South Indian Railway Company Limited, marked "Tender for Copper Plates," or as the case may be, with the name of the firm tendering, must be left with the undersigned not later than 10 a.m. on Friday, the 27th January, 1939.

The Directors do not bind themselves to accept the lowest or any Tender.

A charge, which will not be returned, will be made of 10s. for each copy of each Specification.

Copies of the drawings may be obtained at the Offices of the Company's Consulting Engi-

neers, Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.
E. A. S. BELL,
Managing Director.

91, Petty France,
Westminster, S.W.1.
11th January, 1939.

Assistant Engineer

REQUIRED for the Iraqi State Railway for three years. Salary Iraq Dinars 70 a month (I.D.I. equals £1). Free passages and liberal leave on full salary. The post is not pensionable but there is a Provident Fund Scheme. Candidates, not over 40 years of age, must be Associate Members of the Institution of Civil Engineers or hold an engineering degree recognised as granting exemption from sections A and B of the A.M.I.C.E. examination; have had practical experience on a Railway.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/5904.

Universal Directory of Railway Officials and Railway Year Book

44th Annual Edition, 1938-39

This unique publication gives the names of all the principal railway officers throughout the world, together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented.

Price 20/- net.

THE DIRECTORY PUBLISHING CO. LTD.,
33, Tothill Street, Westminster, S.W.1.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—The Railway Gazette, 33, Tothill Street, Westminster, London, S.W.1.

RAILWAY AND OTHER MEETINGS

Midland Railway Co. of Western Australia Ltd.

The annual general meeting of the Midland Railway Co. of Western Australia Limited was held at Winchester House, Old Broad Street, E.C.2, on January 12, Mr. W. Sandford Poole, chairman of the company, presiding.

The Secretary (Mr. William Tait) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, referred to the loss which the company had sustained by the death on August 14 last, after a short illness, of Mr. J. J. Poynton. Mr. Poynton had been General Manager for a period of 18 years, and, in addition, had acted as the company's Attorney since January 1, 1926. No steps had as yet been taken to appoint a new General Manager, but they had been fortunate in persuading Mr. H. B. Jackson, K.C., to accept office as Local Director, with a general power of administrative control of the company's affairs in Western Australia, subject to the directions of the London board.

It was a pleasure to report an increase in both gross and net traffic receipts for the year under review, compared with those of its recent predecessors. The gross receipts for 1937/8 were £179,613, as against £155,207 in 1936/7, an increase of £24,406. The net receipts were £98,943, the corresponding figure for the previous year being £80,713, an increase of £18,230. The working expenses, £80,670, compared with £74,494 for 1936/7, but the ratio to gross receipts was 44.91 per cent., as against 48 per cent. for the previous year, an improvement of 3.09 per cent. The outstanding feature of the year's operations was the increase of £24,483 in goods receipts. The returns from wheat traffic were over 100 per cent. better, yielding £16,387 more revenue than in 1936/7.

After paying interest on the second mortgage cumulative income debenture stock for the year, at the full rate of

5 per cent., a balance of revenue unappropriated of £47,285 remained. Out of this balance, the board had decided to recommend that a dividend of 2½ per cent. (subject to income tax at 5s. 6d. in the pound), be paid on the unified ordinary stock.

Although the general outlook at the moment was uncertain, there was every reason for hope that, with the vast area of the State and the potentialities of its development, the future would show a progressive improvement, given a greater degree of stability in regard

to the market prices of its main products. In that improvement they had every reason to expect their railway would participate, serving, as it did, a most important and fertile part of the State.

In closing his address, the Chairman expressed the sincere thanks of the board to Mr. Jackson, their new Local Director; to Mr. R. G. Drake, the General Superintendent of the railway, and his assistants; and to Mr. W. C. Johnson, of the Lands Department, and his assistants; for their good services during the past year, and particularly for the manner in which they rose to the occasion during the illness of their chief.

The report and accounts were unanimously adopted.

Railway and Other Reports

London & North Eastern Railway Company.—The half-year's dividends on the first and second guaranteed stocks are to be paid in full.

Beira Railway Co. Ltd.—A dividend of 2s. a share, less tax at 3s. 9d. in the £, is recommended for the year ended September 30, 1938. This is at the same rate as for the preceding 12 months. Net profits amounted to £214,454, against £201,221.

Leyland Motors Limited.—The directors announce that the net profit for the year ended September 30, 1938, before providing for taxes and contingencies, amounted to £643,261. This figure compares with £631,597 for 1936-37. A dividend of 25 per cent. is again to be paid on the ordinary shares and £100,000 (against £150,000) is to be transferred to general reserve.

Highland Transport Co. Ltd.—The report of this company, in which the L.M.S.R. holds a 50 per cent. interest, for the year ended September 30, 1938, shows a gross trading profit of £9,074, compared with £10,114 for the previous year. After allowing for depreciation, directors' fees, income tax, and N.D.C., a balance remains at credit of £2,605,

against £2,838. The directors recommend a dividend of 1s. a share, less tax, absorbing £1,269. They also recommend that £500 be written off goodwill and £500 added to general reserve, leaving £336 to be carried forward. The decrease in net profit is due partly to the bad weather last summer, which resulted in a considerable drop in passenger receipts, and partly to increased income tax and N.D.C.

Westinghouse Brake & Signal Co. Ltd.—Net profit for the year to September 30, 1938, was £262,518, against £275,632 for 1936-37. The directors have again placed £75,000 to general reserve and £10,000 to staff pensions account, and again recommend payment of a dividend for the year of 10 per cent. and a cash bonus of 7½ per cent., leaving £105,106 to be carried forward. The carry-forward for the previous year was £70,569, after applying £31,993 to reducing the book value of the goodwill to £1.

Forthcoming Meetings

Jan. 17 (Tues.)—Rohilkund & Kumaon Railway Co. Ltd. (Ordinary General), 237, Gresham House, Old Broad Street, E.C., at noon.

Railway Share Market

The new Stock Exchange account has not brought increased business to the stock and share markets, and movements in values, although moderate in character, were adverse to holders. The disposition is to await the outcome of the Prime Minister's visit to Rome, which it is felt may be the chief influence affecting sentiment in the more immediate future, as markets have continued to be dominated mainly by the uncertainties of international politics.

Home railway stocks made lower prices, despite the satisfactory impression created by the decision to pay the full dividends on L.N.E.R. guaranteed stocks, which, however, may be shown by the results to necessitate a withdrawal from reserves. The market is hopeful that following the next meeting of the Transport Advisory Council, an important announcement may be made in regard to the "Square Deal" claims. Pending confirmation of this and the dividend decisions, due to be announced next month, it is felt that it is difficult to assess the outlook for the junior stocks of the main-line railways. Debentures have been

reactionary, but very little selling was reported, and the lower levels are attributed to an adjustment to accord with the terms of the Southern Railway debenture issue made this week. The latter is regarded as having been offered at an attractive price and there seems little doubt that if the issue had not been for the large amount of £7,500,000 it would not have been offered at under par. General expectations are that there are reasonable prospects of the price improving to slightly over par during the next few months, and in many quarters most home railway debentures are regarded as being moderately priced.

Southern 4 per cent. debentures have been lowered to 98½ and the 5 per cent. preference was 92, while the preferred ordinary was 57 and the deferred 11½. The market remains hopeful that a dividend of 3½ per cent. may be paid on the preferred ordinary stock for the past year. Great Western ordinary declined to 25 on doubts whether more than 1 per cent. will be forthcoming on this stock if no withdrawal is made from reserves. L.N.E.R. 4 per cent. debentures were 90½

and the first and second guaranteed issues 72½ and 61½ respectively. The 3 per cent. debentures were lowered to 69. L.M.S.R. 4 per cent. debentures were 95½ and the 4 per cent. guaranteed 83, while the 4 per cent. preference were 48½, the 1923 preference 28 and the ordinary 12½. London Transport "C" made the reduced price of 73½.

Apart from Cordoba Central stocks little activity was reported in the Argentine railway section, and as a result price movements were reactionary. In most cases preference and ordinary stocks were less affected than the debentures, most of which would, however, appear to be relatively undervalued. B.A. Gt. Southern 4 per cent. debentures declined to 64 and B.A. Western 4 per cent. debentures to 54. Cordoba Central first debentures rallied to 58 and the income debentures to 11, following news of the company's capital scheme, but the income stock was fractionally lower at 2½. Elsewhere San Paulo ordinary was steadier after an earlier decline, sentiment in regard to Brazilian stocks being assisted by rumours that a settlement relating to Brazil's external debt may be announced before long. American railway shares moved irregularly, but Canadian Pacific were fairly steady around 6½.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1938-39	Week Ending	Traffic for Week		No. of Weeks	Aggregate Traffic to Date			Shares or Stock	Prices						
			Total this year	Inc. or Dec. compared with 1938		Totals		Increase or Decrease		Highest 1938	Lowest 1938	Jan. 11, 1939	Yield (See Note)			
						This Year	Last Year									
South & Central America	Antofagasta (Chili) & Bolivia	834	8.1.39	10,720	-	£ 5,760	1	£ 10 830	£ 17 080	-	£ 6 250	Ord. Stk.	14	71½	8½	Nil
	Argentine North Eastern	753	7.1.39	7,463	-	1,420	28	281 538	267,465	+	14,073	A. Deb.	82	75	70½	51½
	Argentine Transandine	174	Dec., 1938	2,050	-	1,850	52	42 150	59,550	-	17,400	6 p.c. Deb.	8	7	8½	Nil
	Bolivar	2,806	7.1.39	92,060	+	8,251	28	2 088,093	2,224,258	-	136,165	Bonds.	10	4	5	91½
	Buenos Ayres & Pacific	190	31.12.38	\$108,900	+	\$16,400	27	\$3,047,900	\$3,421,800	-	\$373,900	Ord. Stk.	61½	31½	5	Nil
	Buenos Ayres Central	5,082	7.1.39	151,303	-	34,925	28	3,532,754	3,591,439	-	58,685	Mt. Deb.	15½	8	17	Nil
	Buenos Ayres Gt. Southern	1,930	7.1.39	40,633	-	2,047	28	1,143,548	1,269,852	-	126,304	Ord. Stk.	175½	8½	11½	Nil
	Buenos Ayres Western	3,700	7.1.39	128,564	+	17,047	28	2,966,204	3,538,704	-	572,500	"	125½	5	94½	Nil
	Central Argentine	972	31.12.38	21,366	+	1,082	27	484,962	453,656	+	31,306	"	131½	5½	10	Nil
	Do.	1,218	Nov., 1938	17,764	-	—	27	484,962	453,656	+	31,306	Dfd.	6	2½	4	Nil
	Cent. Uruguay of M. Video	188	Nov., 1938	14,300	-	1,500	48	178,100	170,100	+	8,000	Ord. Stk.	3	1¼	2	Nil
	Cordoba Central	70	Nov., 1938	17,407	+	1,441	28	434,507	383,839	+	47,668	Ord. Inc.	3½	3½	2½	Nil
	Costa Rica	810	7.1.39	11,000	+	1,900	1	11,000	9,600	+	1,400	Stk.	28	22½	24	85½
	Dorada	70	Nov., 1938	14,300	-	1,500	48	178,100	170,100	+	8,000	1 Mt. Db.	105¼	104	103½	51½
	Entre Rios	810	7.1.39	11,000	+	1,900	1	11,000	9,600	+	1,400	Ord. Stk.	7¼	3½	6	Nil
	Great Western of Brazil	1,092	7.1.39	11,000	+	1,900	1	11,000	9,600	+	1,400	Ord. Sh.	3½	1½	4	Nil
	International of Cl. Amer.	794	Nov., 1938	\$500,436	+	\$56,587	48	\$5,081,216	\$5,224,782	-	\$143,566	Ord. Pref.	3½	1½	4	Nil
	Interoceanic of Mexico	22½	Dec., 1938	800	-	4,090	52	57,905	61,575	-	3,670	1st Pref.	6d.	6d.	1½	Nil
	La Guaira & Caracas	19½	7.1.39	23,280	+	5,790	1	23,280	17,490	+	5,790	Stk.	8	6½	7½	Nil
	Leopoldina	483	31.12.38	\$436,300	+	\$29,200	26	\$7,022,900	\$7,753,200	-	\$730,300	Ord. Stk.	4	1	2	Nil
	Mexican	319	Nov., 1938	9,206	-	292	22	43,352	42,563	+	789	"	7½	1½	1½	Nil
	Midland of Uruguay	386	31.12.38	6,139	-	3,2	52	143,422	154,113	-	10,691	"	18	16	18	Nil
	Nitrate	274	7.1.39	\$3,189,000	+	\$409,000	28	\$85,416,000	\$90,140,000	-	\$4,724,000	Ord. Sh.	52½	19½	15½	51½
	Paraguay Central	1,059	Dec., 1938	68,780	-	8,128	26	409,453	504,036	-	94,583	Pr. Li. Stk.	60	55½	55½	57½
	Peruvian Corporation	100	31.12.38	633,000	+	5,750	27	440,124	388,375	+	51,749	Pref.	5¼	1¼	2¼	Nil
	Salvador	153½	1.1.39	35,035	-	8,325	1	35,035	26,710	+	8,325	Pr. Li. Db.	23	20	19½	Nil
	San Paulo	140	Dec., 1938	3,400	-	2,785	26	16,915	22,535	-	5,620	Ord. Db.	64	28	29	131½
	Taitai	1,353	7.1.39	18,576	-	1,133	28	434,066	462,430	-	28,364	Ord. Sh.	15½	1½	5½	6
	United of Havana	73	Nov., 1938	1,305	+	379	22	5,203	4,309	+	894	Ord. Stk.	35½	1½	1	Nil
Uruguay Northern	17,185	7.1.39	425,200	-	32,400	1	425,200	457,600	-	32,400	Deb. Stk.	2	1	2	Nil	
Canada	Canadian National	23,721	31.12.38	89,074	-	53,334	52	37 416 258	39 579 872	-	3 163 614	"	—	—	—	—
	Canadian Northern	—	—	—	-	—	—	—	—	-	4 p.c.	Perp. Dbs.	72	60	70½	51½
	Grand Trunk	—	—	—	-	—	—	—	—	-	4 p.c.	Perp. Dbs.	104	90	100½	4
Canadian Pacific	17,185	7.1.39	425,200	-	32,400	1	425,200	457,600	-	32,400	Ord. Gar.	87½	44½	6	Nil	
India	Assam Bengal	1,329	20.12.38	43,312	+	4,751	38	1,071,780	989,511	+	82,269	Ord. Stk.	81½	70	75½	4
	Barsi Light	202	20.12.38	3,532	-	585	38	102,022	94,387	+	7,635	Ord. Sh.	60½	54½	58½	61½
	Bengal & North Western	2,108	20.12.38	78,971	+	751	12	598,386	606,255	-	7,869	Ord. Stk.	311	278	275	69½
	Bengal Doonars & Extension	161	20.12.38	4,128	+	311	38	112,249	109,347	+	2,902	"	89	83	87½	77½
	Bengal Nagpur	3,268	20.12.38	200,325	-	4,545	38	4,915,119	4,992,862	-	77,743	"	95½	90	93½	41½
	Bombay, Baroda & Cl. India	3,085	31.12.38	285,300	+	750	39	6,457,350	6,549,900	-	92,550	"	112½	95	107½	59½
	Madras & Southern Mahratta	2,957	20.12.38	177,375	+	15,568	38	3,953,671	3,739,005	+	214,666	"	109	97	101½	7 8
	Rohilkund & Kumaon	571	20.12.38	15,336	+	209	12	106,314	103,527	+	2,787	"	308	285	278	61½
	South Indian	2,531½	20.12.38	106,804	-	10,586	38	2,959,485	2,994,251	-	34,765	"	104	101	102½	478
	Beira-Umtali	204	Oct., 1938	77,765	-	17,949	4	77,765	95,714	-	17,949	"	—	—	—	—
Various	Egyptian Delta	620	20.12.38	6,821	-	597	38	164,378	174,845	-	10,467	Prf. Sh.	7½	5½	4½	Nil
	Kenya & Uganda	1,625	Aug., 1938	182,150	-	14,527	35	1,860,357	1,920,155	-	59,798	"	—	—	—	—
	Manila	—	—	—	-	—	—	—	—	-	—	B. Deb.	49	41	47	77½
	Midland of W. Australia	277	Nov., 1938	14,024	-	431	22	75,880	69,130	+	6,750	Inc. Deb.	93¼	89	95	47½
	Nigerian	1,900	26.11.38	67,320	-	28,472	35	1,121,409	1,725,735	-	604,326	"	—	—	—	—
	Rhodesia	2,45½	Oct., 1938	386,983	-	80,380	4	386,983	467,353	-	80,380	"	—	—	—	—
	South Africa	13,285	24.12.38	657,912	-	2,131	39	24,046,696	24,917,817	-	871,121	"	—	—	—	—
	Victoria	4,774	Oct., 1938	828,129	+	18,054	18	3,064,925	2,960,281	+	104,644	"	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

* Receipts are calculated @ 1s. 6d. to the rupee. † Receipts are calculated @ 1s. 6d. to the rupee. ‡ Receipts are calculated @ 1s. 6d. to the rupee. § Receipts are calculated @ 1s. 6d. to the rupee. ¶ Receipts are calculated @ 1s. 6d. to the rupee. The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value.